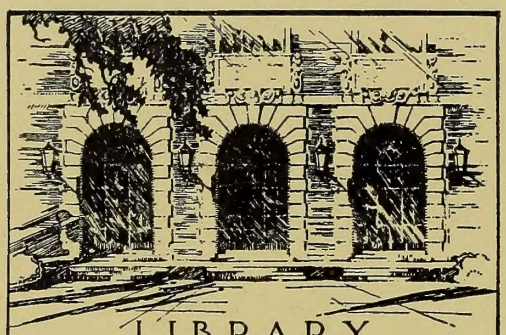

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Maryland Agricultural College Bulletin

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Catalogue 1913-14

1856-1913

The Maryland Agricultural College

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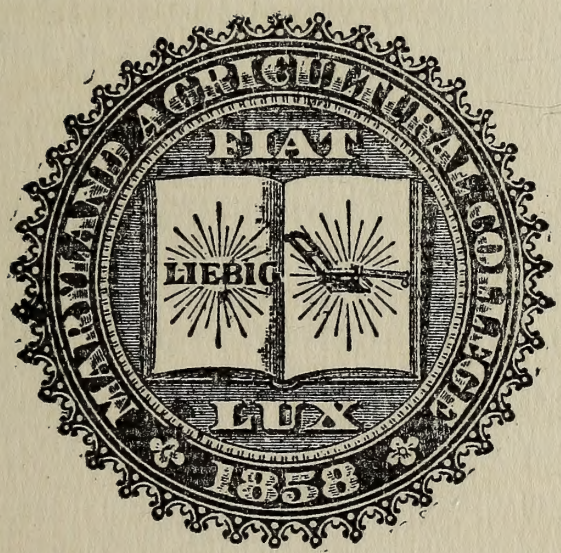
AGRICULTURAL COLLEGE

COLLEGE PARK, MARYLAND

1856



1913

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1913-14

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2. Sugar Corn.

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Alfalfa.

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Cow Peas and Soy Beans.

POULTRY.

MR. ROY H. WAITE, Maryland Agricultural Experiment Station, College Park, Md.

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2. Incubation.
3. Brooding.
4. Growing Young Stock.
5. Caponizing.

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1. Principles of Feeding Laying Hens.
2. Principles of Breeding.

MR. C. L. OPPERMAN, Berwyn, Md.

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2. Cost of Egg Production.
3. Growing Broilers, Roasters, Capons, Etc.

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2. Hot Water and Stove Brooding.

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2. Diseases of Adult Fowls.

MR. HARRY LAMON, U. S. Department of Agriculture, Washington, D. C.

1. Mating and Breeding.
2. Marketing Poultry Products.

DIRECTOR H. J. PATTERSON, Maryland Agricultural Experiment Station, College Park, Md.

The Handling of Poultry Manure.

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2. Peach Culture.
3. Nut Culture in Maryland.

MR. ORLANDO HARRISON, Berlin, Md.

The Propagation of Fruit Trees and General Nursery Practice.

MR. E. P. COHILL, Hancock, Md.

Orchard Management.

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Marketing Orchard and Truck Crops.

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Some Important Insect Pests of the Orchard.

MR. F. S. HOLMES, Maryland Agricultural Experiment Station, College Park, Md.
The Pollination of Fruits.

MR. W. R. BALLARD, Maryland Agricultural Experiment Station, College Park, Md.
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Strawberry Culture.

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The Canning of Corn and Peas.

MR. THOMAS H. WHITE, Maryland Agricultural Experiment Station, College Park, Md.
Sweet Potato Culture.

DIRECTOR H. J. PATTERSON, Maryland Agricultural Experiment Station, College Park, Md.
Fertilizers, Their Mixing and Use.

MR. L. C. CORBETT, U. S. Department of Agriculture, Washington, D. C.
The Importance of Good Seed in the Growing of Truck Crops.

MR. RICHARD VINCENT, JR., White Marsh, Md.
Beautifying Home Grounds and the International Flower Show

FARM LIVE STOCK AND DAIRY.

MR. R. R. WELSH, U. S. Department of Agriculture, Beltsville, Md.
Care and Handling of Mules.

DIRECTOR H. J. PATTERSON, Maryland Agricultural Experiment Station, College Park, Md.

Review of Station Work in Animal Industry.

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2. Co-operative Breeders' Association.
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Dairy Bacteriology.

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3. Sewing and Dress Planning.
4. House Furnishing.
5. Principles of Cooking Starches.
6. Canning.
7. Principles of Cooking Protein.
8. Planning Meals.

DR. CHARLES O. APPLEMAN, Maryland Agricultural Experiment Station, College Park, Md.

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2. Household Chemistry.
3. The Care of Milk.

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Ventilation.

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MR. YOUNG, Washington, D. C.

Demonstration of Methods of Cutting-up a Side of Beef for the Retail Trade.

FARMERS' INSTITUTES.

HIS EXCELLENCY, PHILLIPS LEE GOLDSBOROUGH.

The State's Duty to Agriculture.

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2. Grass.
3. Alfalfa.

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Importance of Drainage.

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CALENDAR.

1913.

THIRD TERM.

Tuesday, March 25th, 1 P. M.—Third Term Begins.
Thursday, May 15th.—Submitting of Theses.
Friday, June 13th.—Final Meeting of Trustees.
Sunday, June 15th.—Baccalaureate Sermon.
Monday, June 16th.—Class Day.
Tuesday, June 17th.—Alumni Day.
Wednesday, June 18th, 11 A. M.—Commencement Day Exercises.

1913-14.

FIRST TERM.

Tuesday, September 16th, and Wednesday, September 17th.—Entrance Examinations.
Thursday, September 18th, 1 P. M.—College Work Begins.
Thursday, November 27th.—Thanksgiving Recess.
Friday, December 19th, 4 P. M.—First Term Ends.
Friday, December 19th, 4 P. M., to Tuesday, January 6th, 1 P. M.—Christmas Recess.

SECOND TERM.

Tuesday, January 6th, 1 P. M.—Second Term Begins.
Wednesday, January 7th.—Special Winter Courses Begin.
Monday, February 2nd.—Filing Subjects of Theses.
Saturday, March 21st.—Second Term and Special Winter Courses End.

THIRD TERM.

Monday, March 23rd.—Third Term Begins.
Wednesday, April 8th, Noon, to Tuesday, April 14th, 1 P. M.—Easter Recess.
Friday, May 15th.—Submitting of Theses.
Friday, June 12th.—Final Meeting of Trustees.
Sunday, June 14th.—Baccalaureate Sermon.
Monday, June 15th.—Class Day.
Tuesday, June 16th.—Alumni Day.
Wednesday, June 17th, 11 A. M.—Commencement Day Exercises.

MARYLAND AGRICULTURAL COLLEGE.

HISTORY.

"An act to establish and endow an agricultural college in the State of Maryland" was passed by the Legislature of the State in 1856, and is found in Chapter 97 of the Laws of Maryland for that year. The scope of this act of incorporation is shown by the preamble, which reads as follows:

> WHEREAS, It has been represented to the Legislature, that certain wise and virtuous citizens are desirous of instituting and establishing in some convenient locality within this State, an Agricultural College and Model Farm, in which the youthful student may especially be instructed in those arts and sciences indispensable to successful agricultural pursuits; and
>
> WHEREAS, It doth appear to this Legislature, that while the wise and learned in the present age hath cultivated with laudable industry, and applied with admirable success the arts and sciences to other pursuits, the most necessary, useful and honorable pursuits of agriculturists have so far been lamentably neglected; and
>
> WHEREAS, It is the province and duty of the Legislature to encourage and aid the philanthropic citizens in their efforts to disseminate useful knowledge by establishing an Agricultural College and Model Farm, which shall, in addition to the usual course of scholastic training, particularly indoctrinate the youth of Maryland, theoretically and practically, in those arts and sciences, which with good manners and morals, shall enable them to subdue the earth and elevate the State to the lofty position its advantages in soil, climate, etc., and the moral and mental capacities of its citizens, entitle it to attain.

This was the first effort in the Western Hemisphere to use scientific investigation for the advancement of the vocation of Agriculture, since at that time no other institution of a similar character existed in the United States. Under the charter thus granted to a party of public-spirited individuals, the original College building was erected, and its doors were opened to students in the fall of 1859.

For three years it was conducted as a private institution. In 1862, the Congress of the United States, recognizing the valuable work in the cause of practical education which such colleges could achieve for the country passed the "Land Grant Act." This Act granted each State and Territory which should claim its benefit

a proportionate amount of unclaimed Western lands, in place of scrip, the proceeds from the sale of which should apply under certain conditions to the "**endowment, support and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life.**" This grant having been formally accepted by the General Assembly of Maryland, and the Maryland Agricultural College being named as the beneficiary of the grant, the College thus became, in part, at least, a State institution, and such it is at the present time.

During recent years the College has made a steady growth. This fact is evidenced by the increased number of students availing themselves of its facilities; by the erection of many new buildings—the library and gymnasium building, the chemical laboratory, Morrill Hall, the sanitarium, the administration building and barracks, and the engineering building; as well as by the establishment of the Department of Farmers' Institutes and the State Departments of Chemistry (Fertilizer, Feed and Agricultural Lime Control), Horticulture, Entomology and Vegetable Pathology. As a consequence of its development under such favorable auspices the institution has become the most important factor in the agricultural and industrial development of the State.

The State Bureau of Forestry co-operates with the College, the Director being, by the terms of his appointment, Lecturer on Forestry at the Agricultural College.

LOCATION AND DESCRIPTION.

The Maryland Agricultural College is located in Prince George's county, Maryland, on the line of the Washington Branch of the B. & O. R. R., eight miles from Washington, and thirty-two miles from Baltimore. At least nine trains a day from each city stop at College Station, thus making the place easily accessible from all parts of the State. Hyattsville is the telegraph station. Telephone connection is made with the Chesapeake and Potomac lines.

The College grounds front on the Baltimore and Washington Boulevard. The suburban town of Hyattsville is two miles to the south, and Laurel, the largest town in the county, is ten miles to the north on the same road. Access to these towns and to Washington may be had by steam and electric railway. The site of the College is particularly beautiful. The buildings occupy the crest of a commanding hill, which is covered with forest trees, and overlooks the entire surrounding country. In front, extending to the Boulevard, is a broad, rolling campus, the drill ground and athletic field of the students. In the rear are the farm buildings and barn. A quarter of a mile to the northeast are the buildings of the Experiment Station. The College farm contains about three hundred acres, and is devoted to fields, gardens, orchards, vineyard, poultry yards, etc., used for experimental purposes and demonstration work in agriculture and horticulture.

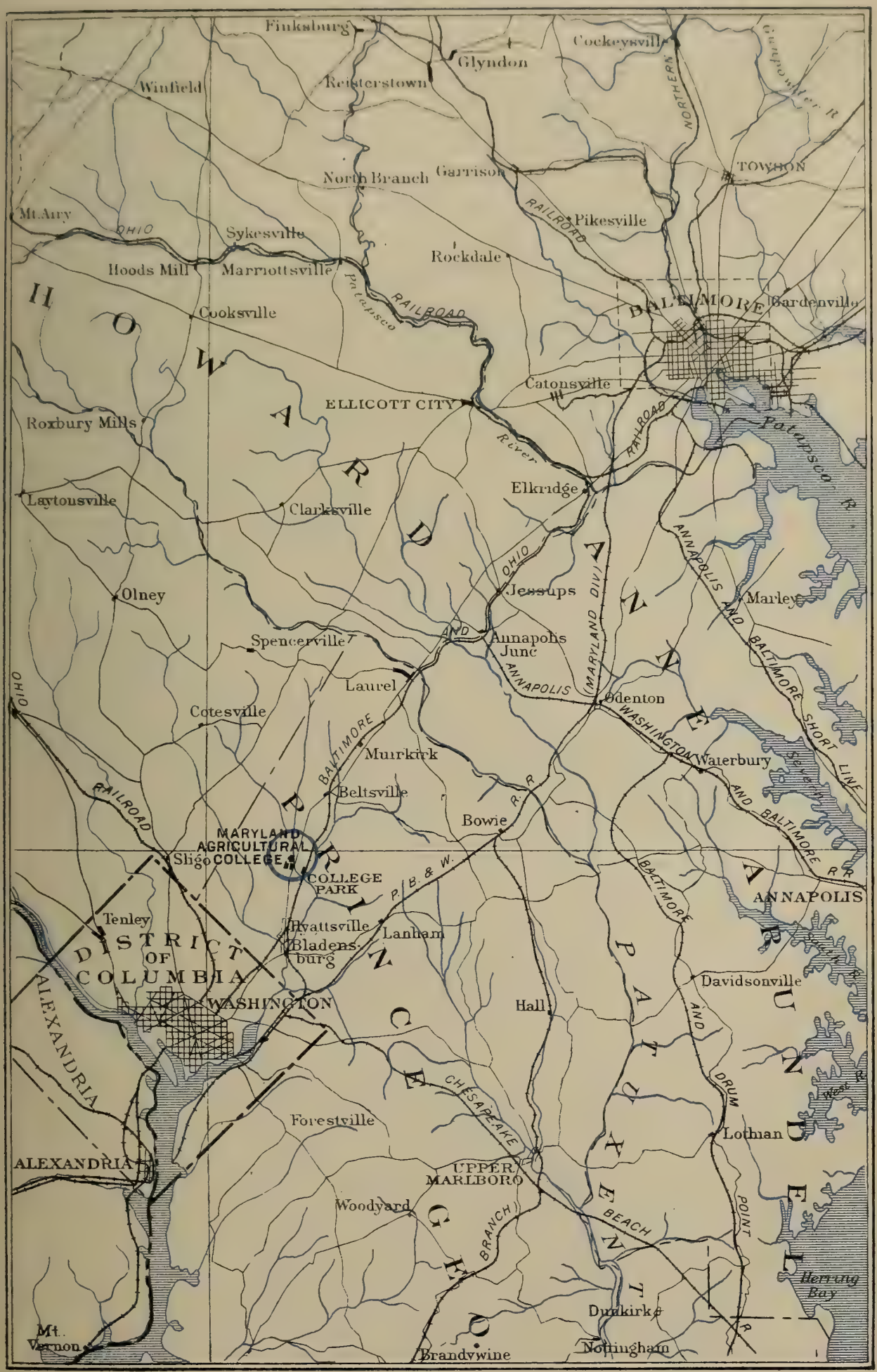
The general appearance of the College grounds is exceedingly attractive. They are tastefully laid off in lawns and terraces which are ornamented with shrubbery and flower beds. The view from the grove and campus cannot be surpassed.

The location of the College is healthful; the sanitary conditions are excellent. No better proof of this can be given than that there has been practically no serious case of illness among the students for many years.

COLLEGE BUILDINGS—THE FIRE.

The original College building completed in 1859 and the administration building completed in 1904 and connected with the former by a covered bridge, were completely destroyed by fire on the night of November 29, 1912. These buildings contained living rooms for the students, assembly hall, drill hall, executive offices and two recitation rooms. The insurance on these buildings, about $125,000, is available for rebuilding, which will be commenced at an early date.

A temporary assembly hall, kitchen and dining halls have been erected and are now ready for use. Living rooms for a part of the students are available in several houses on the College farm.

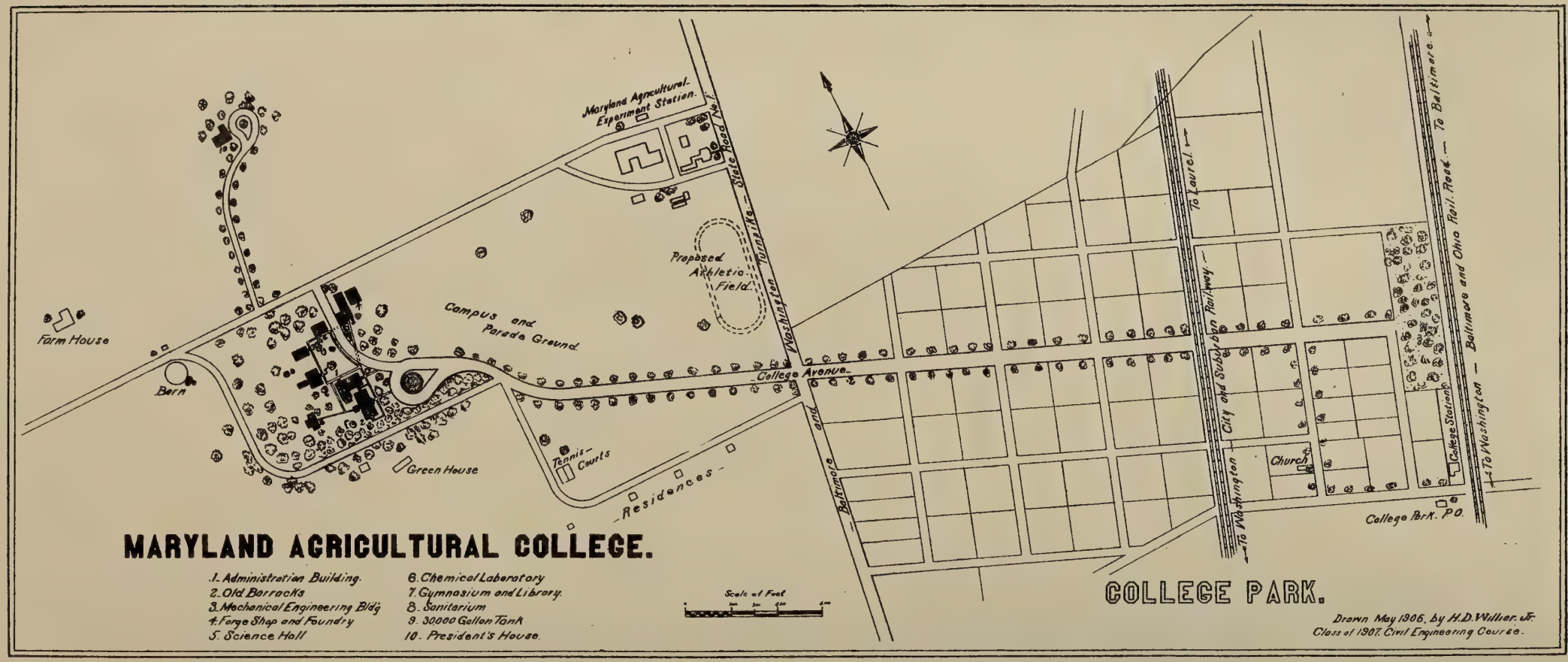


MAP SHOWING LOCATION OF

MARYLAND AGRICULTURAL COLLEGE.

8 7 6 5 4 3 2 1 0 8

8 miles = one inch


Maryland Agricultural Experiment Station.
State Road No. 1
Proposed Athletic Field
Campus and Parade Ground
Washington Boulevard
College Avenue
Farm House
Barn
Green House
Tennis Courts
Residences
Baltimore and Ohio Rail. Road
To Laurel
City and Suburban Railway
To Washington
To Baltimore
Church
College Station
College Park. P.O.
MARYLAND AGRICULTURAL COLLEGE.
1. Administration Building.
2. Old Barracks
3. Mechanical Engineering Bldg
4. Forge Shop and Foundry
5. Science Hall
6. Chemical Laboratory
7. Gymnasium and Library.
8. Sanitarium
9. 30000 Gallon Tank
10. President's House.
Scale of Feet
COLLEGE PARK.
Drawn May 1906, by H.D. Willier Jr.
Class of 1907. Civil Engineering Course.

The fire did not touch any of the laboratories, shops or greenhouses, and but two recitation rooms, so that the facilities for instruction are unimpaired.

In 1894 the building used as the gymnasium and library was erected. The gymnasium, on the ground floor, is well furnished with modern athletic appliances. The library and reading room is on the second floor, and is large, well-lighted and commodious.

The Departments of Civil, Electrical and Mechanical Engineering and the Department of Physics are located in the two-story brick building erected in 1896, the brick annex erected in 1904, and the brick addition constructed in 1909. This latter, which consists of a main building four stories in height and a wing three stories in height, is so arranged as to form with the buildings previously erected a concrete whole. In this group of buildings are found laboratories of various kinds, wood and machine shops, a forge room and foundry, drawing rooms, blue print rooms, instrument rooms, lecture rooms, offices, a library room, lavatories, etc. The equipment is modern in every respect and the facilities for work in the above named departments are greatly increased.

The chemical building was completed in 1897, and is now thoroughly equipped. It contains several lecture rooms and laboratories for practical work and the analysis of fertilizers, feeding materials for domestic animals, and agricultural lime. This work is assigned by Acts of the General Assembly to the Professor of Chemistry at this College, who thereby becomes the State Chemist.

Another addition to the group of College buildings is Morrill Hall, erected in 1898. This building provides accommodations for the Departments of Agriculture, Horticulture, Entomology, Vegetable Pathology and Veterinary Science. A greenhouse for experimental work in entomology and vegetable pathology was erected in 1904.

The College Sanitarium, completed in 1901, has proved a most efficient means of isolating infectious diseases which might otherwise have become epidemic, thus seriously embarrassing College work. It contains ample room for all emergencies, and is furnished with modern hospital facilities. This building is being used, temporarily, as the Administration Building.

GENERAL AIM AND PURPOSE.

The Agricultural College is the State school of science and technology. While seeking, first of all, to perform the functions of an agricultural college, its sphere of work has been widened to embrace all the sciences akin to agriculture, and all the arts related to mechanical training. To these special and prominent lines of work have been added such branches of study as are necessary for a liberal education, for the development of the intelligent citizen and for general culture. The purpose of this college is to give young men anxious to prepare themselves for the active duties of life such training in the lecture room and laboratory as will enable them to take their places in the industrial world well prepared for the fierce competition of the day.

Recognizing that such an education, in order to be of practical advantage to many, must be offered at a cost within the means of all, the expenses for the year to the student have been reduced to the point where his college dues are not in excess of his ordinary daily expenses. It is to be remembered that the College is a State institution, in part supported by the State, in part by the Federal Government, through its several endowment Acts, and that it is in no sense a money-making institution, but simply a medium of disbursement by the Government to those upon whom the safety and prosperity of the State so largely depend.

While the College provides, as will hereafter be explained, several distinct courses of instruction, looking to the special training of the student in agriculture, engineering and science, the fact is clearly kept in view that a sound foundation must be laid for each and every course. Successful specialization is only possible after the student has prepared for it by a thorough training in the essentials. All education must be narrow and one-sided which does not provide for the general culture of the student, and which does not look first to the natural and normal development of the individual. That the aim of the College is to train the student in a specialty without sacrificing his development in general culture is shown in the description of the general working plan given in the next paragraph.

It begins with the student in his first, or Freshman, year with

a systematic and carefully adjusted scheme of work, differing but little in the several courses, and looking to his general development in mental strength, range of information and power of expression and thought. At the beginning of his second, or Sophomore, year the differentiation may be said to begin along those lines in which he shows most natural aptitude. This gradual specialization continues during his third, or Junior, year, until in his last, or Senior, year, his work consists chiefly of a few closely connected topics, in which he is thus able thoroughly to prepare himself. With the present equipment of the laboratories and work-shops a student is able to become so proficient in his chosen line of work that when he leaves the College a successful career is open to him if he chooses to avail himself of it.

The Agricultural College, is logically, the crowning point of the public school system of Maryland. Its aim in particular is to provide a higher education for the graduates of the county schools. To this end its curriculum is adjusted to meet the preparation of such students. It is this class of young men that the College is especially desirous of reaching. Experience has shown that our most satisfactory students come as graduates from the county schools, and no efforts will be spared to make the transition from the high school or grammar school to the College a possible one for all those actuated by an earnest desire to complete their education.

DEPARTMENTS OF THE COLLEGE.

AGRICULTURE—
AGRONOMY.
ANIMAL HUSBANDRY.
FORESTRY.
BOTANY AND VEGETABLE PATHOLOGY.
CHEMISTRY.
CIVIL ENGINEERING.
ELECTRICAL ENGINEERING AND PHYSICS.
ENGLISH AND CIVICS.
ENTOMOLOGY AND ZOOLOGY.
HORTICULTURE—
POMOLOGY.
VEGETABLE CULTURE.
LANDSCAPE GARDENING AND FLORICULTURE.
LANGUAGES.
MATHEMATICS.
MECHANICAL ENGINEERING.
MILITARY SCIENCE.
ORATORY.
PHYSICAL CULTURE.
SUB-COLLEGIATE INSTRUCTION.
VETERINARY SCIENCE.

The following pages give, under the several departments, the general character of the courses offered by each, and the main features of their equipment.

AGRICULTURE.

PROFESSOR TALIAFERRO.
MR. BESLEY.
ASSOCIATE PROFESSOR RUFFNER.
MR. KINZY.

The Agricultural Department offers three courses:

I. A four-year course leading to the degree of Bachelor of Science.

II. A two-year course, for proficiency in which a certificate is awarded.

III. Short winter courses. An outline of these courses is given on page 118.

Education is transforming the farms into veritable work-shops, whose products, in the aggregate, more than equal those of any other industry of the country, and which, under the influence of more general intelligence, are capable of indefinite extension. In this work there is need of the trained investigator to discover the natural laws which underlie the phenomena of plant and animal life, and also of educated farmers with skill and intelligence to receive principles and apply them in practical farming.

These courses are so arranged as to furnish a good foundation upon which the student may build a successful career as a farmer, or develop into a specialist along some line pertaining to the farming industry. The studies to be pursued are recognized as being those necessary to equip the student for the highest order of work and for the greatest usefulness.

The College farm consists of two hundred and sixty-five acres of land, which is operated by the Maryland Agricultural Experiment Station. Students of the Agricultural Course are made acquainted with the work of the Station from time to time, and because of the College and Station's close association an excellent opportunity is afforded the student to study the cultivation and growing of crops, the application of manures and fertilizers, the care of stock, the selection of seed from growing crops, the judging of the several classes of animals and all the work of the practical farmer.

DIVISION OF AGRONOMY.

The Division of Agronomy takes up the agricultural work pertaining to the field and its crops. A number of courses are offered. These treat of farm crops, their classification, adaptation to soil and climate and methods of culture; soils, their properties, and how to care for them and make them more productive and fertile by crop rotation, and by the application of manures and fertilizers;

farm management, how to make the farm a source of pleasure and profit by employing economic business principles and practices; farm machinery, the kind of tools to use for preparing the land and for cultivating and harvesting the crops. A new soils laboratory has been added to this Department. In this laboratory the student has an excellent opportunity to study the physical properties of the different kinds of soils. A separate desk with ample apparatus is provided each student to perform experiments for himself.

COURSES OFFERED.

1. Elementary Agronomy. This is an introductory course designed to acquaint the young student with the fundamental principles of good farm practice in the handling of soils and the profitable production of farm crops. At the same time it seeks to develop an interest in improved agriculture by showing its capabilities under proper management. Instruction is given by field and laboratory exercises with explanatory lectures.

Sub-Freshman Year—Third Term, 2 practical periods per week.

2. Farm Crops. In this course the production of farm crops is considered in detail as to history, uses and requirements, local adaptations, varieties, fertilization, cultivation and harvesting. A special feature is the study of crop improvement by breeding and selection. Very much of this work is of a practical nature in the laboratory or on the farm.

The texts used are Morrow and Hunt's "Soils and Crops," Hunt's "The Cereals in America," Shamel's "Corn Judging."

Freshman Year—Third Term, 1 theoretical and 4 practical periods per week.

Sophomore and First Year—Third Term, 2 theoretical and 4 practical periods per week.

3. Soils. The study of the physical and chemical conditions of the soil in their relation to profitable agriculture. The soil is the basis of all agriculture, and a knowledge of its properties and func-

tions cannot be too highly emphasized. The study of this important subject is conducted by means of lectures, text-books, laboratory and field work. No State in the Union possesses a greater variety of soils than Maryland, and great attention is paid to the study of soil types in their relation to profitable agriculture.

A well-equipped soils laboratory and the wide variety of soils found on the College farm offer exceptional advantages in the theoretical and practical study of this important subject.

The text-book used is "The Soil," by King.

Sophomore and First Year—First and Second Term, 2 theoretical and 4 practical periods per week.

4. Farm Drainage. Practical work in open ditching and under drains is provided for the students on the Experiment Station farm. Special attention is given to the principles and practice of tile drainage.

The text-book used in this course is Waring's "Drainage for Profit and Health."

Sophomore and First Year—Third Term, 2 theoretical and 4 practical periods per week.

5. Plant Production. This course is intended only for those students who are specializing in agronomy. It consists of field and laboratory work in the study of the handling of fall-sown and fall-harvested crops. Great attention is given in this course to a careful note-taking and study of the results obtained in breeding work in corn and other fall maturing crops on the Experiment Station farm.

Junior and Second Year—First Term, 3 theoretical and 4 practical periods per week.

6. Fertilizers. Of vital interest to the eastern and southern farmer of the present day is the fertilizing question. Between it and the profit and loss account is a very close connection, and frequently a lack of knowledge of the subject entails upon the farmer both the loss of money paid and of the possible increase of the crop. In this course the subject is developed logically from the needs of the plant and the efficiency of the soil to the selecting of the proper

plant foods for each crop under varying conditions of soil and climate. Special attention is given to the home-mixing of fertilizers.

Sophomore and Second Year—Third Term, 2 theoretical and 4 practical periods per week.

7. Farm Machinery. Lectures and practical work.

Junior Year—Third Term, 2 theoretical and 4 practical periods per week.

Second Year—First Term, 2 theoretical and 4 practical periods per week.

8. Farm Management. Lectures and practical work.

Junior and Second Year—First Term, 2 theoretical periods per week.

Senior Year—Third Term, 2 theoretical and 4 practical periods per week.

9. Advanced Work in Crop Production. Lectures and practical work.

Senior Year—First and Third Term, 3 theoretical and 4 practical periods per week.

Second Year—Third Term, 3 theoretical and 4 practical periods per week.

10. Advanced Work in Soils. Lectures and practical work.

Senior Year—First and Third Term, 3 theoretical and 4 practical periods per week.

Second Year—Third Term, 3 theoretical and 4 practical periods per week.

11. Grain Judging. This course consists of a critical comparative study of the cereals and other farm seeds from the standpoint of market grading and fitness for seed purposes. It is designed to familiarize the student so with the subject that he may not only handle his own crops to the best advantage, but may also be qualified to act as a judge at county fairs, grain shows, etc. Instruction is given by means of laboratory practice and lectures.

Second Year—Second Term, 2 theoretical and 4 practical periods per week.

12. THESIS AND RESEARCH. To be arranged for with the head of the Department.

Junior Year—Third Term, 2 practical periods per week.

Senior Year—First Term, 2 practical periods per week; Second Term, 4 practical periods per week; Third Term, 2 theoretical and 4 practical periods per week.

GEOLOGY.

COURSES OFFERED.

13. GEOLOGY. Attention is given chiefly to physical geology. The latter half of the term is devoted to the geology of Maryland, especially as affecting the character of the soils, mineral wealth and other economic conditions of the State. Instruction is given by means of text-book work, lectures and field excursions.

Shaler's "First Book in Geology" is used as a text-book. The reports of the Maryland Geological Survey are used for reference.

Freshman Year—First Term, 4 theoretical and 2 practical periods per week.

GEOGRAPHY,

COURSES OFFERED.

14. PHYSICAL GEOGRAPHY. A general view of phenomena and their mutual relations.

Preparatory Year—Second Term, 4 practical periods per week.

DIVISION OF ANIMAL HUSBANDRY.

The Division of Animal Husbandry stands for all lines of work which pertain to the judging, selecting, breeding, feeding, development, care and management of the various breeds and classes of

domesticated animals. Good herds of stock are being established at the Maryland Agricultural Experiment Station which are of use to the student in his studies. In addition to the supply of stock on the farm the proximity of the College to Washington and Baltimore makes it possible for the student to get excellent material for study. The Heurich dairy farm, close by, furnishes an excellent example in dairy farming. It is quite evident that there is but one way to make a young man a proficient judge of live stock, and that is by training the eye. In all of the lecture and laboratory work outlined in the courses the work is demonstrated with living specimens.

New dairy barns are erected at the Experiment Station. These are models of sanitation. A well lighted and heated pavilion for judging live stock is a recent addition to the equipment.

A growing library of herd-books is available to the student of pedigrees. These books give a fund of information concerning heredity, fecundity and other breed characteristics.

COURSES OFFERED.

20. ELEMENTARY ANIMAL HUSBANDRY. This course consists of lectures and practical demonstrations in the judging, selecting and feeding for specific purposes of certain classes of domestic animals, together with a very elementary course in dairying.

Preparatory Year—First Term, 2 practical periods per week.

21. BREEDS AND SCORING. This course is devoted to the detailed study of the breeds of live stock. The practical work commences with a study of the animal form by the use of the score-card. Especial attention is given to the relation of form to function. First, the productive types are firmly fixed in the student's mind; then he takes up more particularly breed characteristics.

Text-books: "Types and Breeds of Farm Animals," by Plumb; and "Judging Live Stock," by Craig.

Freshman and First Year—First Term, 1 theoretical and 2 practical periods per week.

Junior Year—First Term, 1 theoretical and 6 practical periods per week.

22. Principles of Breeding. This course takes up the principles of breeding, including selection, heredity, atavism, variation, fecundity, in-and-in breeding, cross-breeding and a historical study of the results.

Text-Books: "Stock Breeding," Miles; "Principles of Breeding," Davenport; "Breeding Farm Animals," Marshall.

Junior and Second Year—First Term, 3 theoretical periods per week.

23. Live Stock Management. Lectures are given on the housing, feeding, care and management of dairy cattle, hogs and horses; the housing, feeding, care and management of beef cattle and sheep. The practical work consists of applications of the work in the lectures, and takes up the drawing of barn plans and other stable conveniences.

Sophomore Year—First Term, 2 theoretical and 4 practical periods per week.

24. Dairying. Lectures, recitations and practical work.

Text-books: Wing's "Milk and Its Products;" Russell's "Dairy Bacteriology."

Junior and Second Year—Third Term, 3 theoretical and 4 practical periods per week.

Senior Year—First Term, 1 theoretical and 6 practical periods per week.

25. Stock Judging. Special attention is paid to the judging of groups of animals, similar to county and State fair work.

Senior Year—First and Third Term, 4 practical periods per week.

Second Year—Second Term, 4 practical periods per week.

26. Animal Nutrition. This course embraces the principles and practice of animal feeding. After covering the principles of nutrition, it takes up the composition of feeding stuffs, their combination into properly balanced rations, and the relation between the sustenance of animals and their products. Students entering

this course should have completed courses in organic chemistry and comparative anatomy and physiology.

Text-books: "Feeds and Feeding," Henry; "Feeding of Animals," Jordan.

Junior Year—Second Term, 4 theoretical and 2 practical periods per week; Third Term, 2 theoretical and 2 practical periods per week.

Senior Year—First Term, 2 theoretical and 4 practical periods per week; Third Term, 3 theoretical and 2 practical periods per week.

Second Year—First and Second Term, 2 theoretical periods per week.

27. Profitable Stock Feeding. This course treats of the feeding of animals in a most practical manner. Special attention is given to the feeding of breeding stock and the fattening of animals for market. There is no special requirement to enter this course, as in course 26.

Text-books: "The Management and Feeding of Cattle," by Thomas Shaw; "Profitable Stockfeeding," by Smith.

Second Year—Second Term, 4 practical periods per week.

28. Farm Poultry. This course takes up the methods of housing, artificial incubation, artificial breeding, feeding of chicks, feeding of laying hens and diseases of poultry.

Text-book: "Poultry Craft," by Robinson.

Senior and Second Year—Second Term, 2 theoretical periods per week.

29. Research and Thesis. Upon lines and subjects to be arranged with the Department.

The object of this work is to develop independence and originality in the student, and also to give him a taste for personal investigation upon lines which are of particular interest to himself. The results of these investigations are usually incorporated in a thesis.

Senior Year—Second Term, 4 practical periods per week; Third Term, 4 theoretical and 4 practical periods per week.

DIVISION OF FORESTRY.

The instruction in Forestry is planned to give to the student, who is fitting himself to take up the practical problems of farm management, a sufficient knowledge of the principles of forestry to enable him to apply to the wood lot or timber tract, which is a part of practically every farm, the same degree of intelligent direction which he is prepared to give to the tilled lands and thus obtain equally satisfactory results.

The following course is offered:

40. Farm Forestry. This course includes forest botany, woodlot management, measurement, valuation and utilization of forest crops, fire protection, nursery practice and tree planting. Lectures and field work.

Senior and Second Year—First Term, 2 theoretical and 4 practical periods per week.

BOTANY AND VEGETABLE PATHOLOGY.

PROFESSOR NORTON.

ASSOCIATE PROFESSOR SMITH.

The courses in Botany are intended to give such knowledge of the vegetable kingdom as is a proper element in general culture; to train the student mind in observation, comparison, generalization and other mental processes essential to true scientific methods in any work; and to furnish a basis for practical studies directly connected with agriculture, since plants are the subjects dealt with in the field and garden. In addition to the courses in pure botany, others of special economic trend are given. These are especially for students in the Agricultural and Horticultural Courses, and take up such botanical studies of cultivated plants, plant diseases, etc., as may be useful in practical life to the professional farmer or gardener.

The equipment and means for illustration and demonstration consists of a reference library containing the principal botanical

works needed by students, charts and maps, compound and dissecting microscopes, preserved specimens for illustration and a representative collection of Maryland plants; microtome and other instruments together with reagents and apparatus for histological work and physiological experiments; and a culture room, sterilizers, incubators and other facilities for the study of plant diseases

Advanced students have an opportunity to observe the work being done in the laboratory of Vegetable Pathology and greenhouse of the State Horticultural Department and of the Experiment Station, and, if competent, to assist in the same. Special attention is given to students who wish practice in the treatment of plant diseases, as it is the desire of the Department to encourage young men to engage in this work as a business.

COURSES OFFERED.

60. PLANT LIFE. The course gives the student an idea of the following courses in botany, and is to aid him in deciding later in what studies he wishes to specialize.

Preparatory Year—Third Term, 2 practical periods per week.

61. ELEMENTARY BOTANY. The students familiarize themselves with the commoner plants and their names; and discussions of their ecology and economic importance are taken up.

Sub-Freshman Year—First Term, 2 practical periods per week.

62. SEEDS AND WEEDS. By examination and careful study the student becomes familiar with the ordinary field and garden seeds, and with the weed seeds which are commonly found as adulterants. He is thus enabled to identify these at sight. A study of the common weeds is also pursued.

First Year—First Term, 4 practical periods per week.

63. GENERAL PRINCIPLES. This is an elementary course in the general principles of anatomy, morphology and physiology of the higher plants. The structure and types of seed, root, stem, leaves, flowers and fruit are studied in the laboratory, with a brief con-

sideration of the functions of the different plant organs, a more complete course in plant physiology (66) being given later.

There is also field work, with the manual on the native flora, designed to give a knowledge of the common Maryland plants and their position in the classification of the vegetable kingdom. The ecology of the plants examined in the field is also considered, and includes their relation to soils, water supply, light and other factors in their environment, cross pollination, dissemination of seeds, plant societies, etc. Each student makes a collection of plants from some part of the State.

Bergen and Caldwell's "Practical Botany" is the principal textbook used.

Reference books: Gray's "Field, Forest and Garden Botany," Britton's "Manual," Gray's "New Manual," Britton and Brown's "Illustrated Flora."

Freshman Year—Third Term, 2 theoretical and 4 practical periods per week.

64. Farm Botany. Work similar to that given in 63, with special reference to the agricultural side of botany.

First Year—Third Term, 2 theoretical and 4 practical periods per week.

65. Plant Histology. Laboratory work with the compound microscope, studying the minute structure of the tissues and organs of the various types of plants. Each student prepares a series of sections for study with the microscope, from which he makes a set of outline drawings.

Steven's "Plant Anatomy" and Chamberlain's "Methods in Plant Histology" are the principal books used.

Sophomore Year—First Term, 1 theoretical and 6 practical periods per week.

66. Plant Physiology. Lectures and experiments on the life processes of plants; absorption and transfer of water and food materials, photosynthesis, respiration, growth, movement and reproduction. Special attention is given to the relation of physiological principles to agriculture.

Text-books: Barnes' "Physiology," Osterhaut's "Experiments with Plants."

Sophomore Year—Second Term, 2 theoretical and 4 practical periods per week.

67. Advanced Physiology. This course provides more advanced work in the plant physiological laboratory.

Junior Year—First Term, 6 practical periods per week.

68. Comparative Morphology and Classification. A comparative study of the structure and life history of the principal types of plants from the lowest to the highest, based on miscroscopic studies in the laboratory.

Text-book: Bergen and Davis' "Principles of Botany," Part II. The outline of classification of Engler's Syllabus is followed in general.

Junior Year—First Term, 2 theoretical and 4 practical periods per week.

69. Economic Plants. Lectures are given on the names, classification, nativity and uses of the useful and detrimental plants of the world, and field and laboratory studies are made of the common cultivated plants. This is done with a view to enabling the student of horticulture or agriculture to know the scientific names and relationship of the plants with which he comes in contact in his chosen work.

Reference works: Bailey's Gray's "Field, Forest and Garden Botany," Bailey's "Encyclopedia of Horticulture," etc.

Junior Year—Second Term, 2 theoretical and 4 practical periods per week.

70. Seed Analysis. Practical work in testing seeds for purity and viability, including all methods used in the State Seed Laboratory located at the Experiment Station.

Junior Year—Second Term, 1 theoretical and 6 practical periods per week.

71. Microscopy of Foods and Drugs. The identification of various food and drug products and their adulterants by means of the microscope.

Junior Year—Third Term, 2 theoretical and 4 practical periods per week.

72. Plant Diseases. A practical study of diseases of plants to enable the student to know them and to understand the methods of control.

Second Year—Third Term, 2 theoretical and 2 practical periods per week.

73. Vegetable Pathology. This includes microscopic and macroscopic examinations of parasitic fungi in their relations to diseases in higher plants, studies of the nature of disease in plants, physiological diseases, etc., together with the best known means for the prevention and control of diseases. Lectures, reference work, laboratory work and experiments in infection and treatment constitute the course.

Junior Year—Third Term, 2 theoretical and 4 practical periods per week.

74. Vegetable Pathology. This course is an extension of course 73 and is required of Biological students specializing in botany.

Junior Year—Third Term, 1 theoretical and 6 practical periods per week.

75. Elective courses for students of the Biological Course and for post-graduate students are offered in Methods in Plant Pathology. Botanical Microchemistry, Histology of Trees, Weeds and Poisonous Plants, Seed Testing, Taxonomy or advanced work in any of the undergraduate courses before mentioned.

Senior Year—7 theoretical and 12 practical periods per week.

76. Research. Students electing botany as a major in the Senior Year devote a portion of their time to the completion of an

original study of some botanical subject upon which they prepare the graduation thesis. The time scheduled is a minimum.

Senior Year—1 theoretical and 4 practical periods per week.

CHEMISTRY.

PROFESSOR MCDONNELL.

ASSOCIATE PROFESSOR RROUGHTON.

This Department is charged with two distinct classes of work. (1) The State fertilizer, food and lime inspection, and (2) the instruction of students. The State work necessitates the publication of the "Quarterly" bulletin, which is usually made up of the results of the analysis of fertilizers, feeding stuffs, or agricultural lime, and is sent free of charge to all Maryland farmers who apply. Students do no part of the State work, the assistants being college graduates. However, this work serves as a valuable object lesson to the advanced students.

The Chemical Laboratory Building is devoted entirely to chemistry. It is new and, not including basement, is two stories high. On the first floor are the laboratories for the State fertilizer, feed and lime control work, office, lecture room and balance room. On the second floor are three laboratories for the use of students—one for each class—a students' balance room with first-class chemical and assay balances and a supply room. The assay furnaces are in the basement. Each student is provided with a working desk, lockers, reagents and apparatus. Additional apparatus and materials are provided from the supply room, as needed.

The Department is provided with a small, but well-selected, library of standard reference books on chemistry, to which additions are made from time to time.

Instruction in chemistry is begun with the Sophomore Year, three to four periods per week being devoted to lectures and recitations, and two to four periods to practical work in the laboratory by the student, under the supervision of the instructor. In this way

he comes in direct contact with the substances studied, having at hand ample facilities for learning their properties. Special attention is given to the elements and compounds of practical and economic importance, such as the air, water and soil, the elements entering into the composition of plants and animals, the useful metals, etc. The course in the Sophomore Year is intended to give the student that practical and theoretical knowledge of elementary chemistry which is essential in the education of every man, no matter what his vocation. It also serves as a foundation for advanced work in chemistry, if such a course is chosen.

Advanced work in chemistry begins with the Sophomore Year, Third Term, if the Course in Chemistry is selected, and the larger part of the student's time is devoted to some branch of theoretical or practical chemistry during the rest of his course, as outlined elsewhere.

The object of the Course in Chemistry is to prepare the graduate for positions in agricultural colleges, experiment stations, the United States Department of Agriculture, or the various industries which require the services of trained chemists. The demand for our graduates for such positions is far in excess of the supply.

COURSES OFFERED.

80. FARM CHEMISTRY. This course consists of an elementary course in general chemistry, with special reference to the chemistry of plants, animals, fertilizers, etc.

Text-book: Remsen's "Elementary Chemistry."
First Year—2 theoretical and 2 practical periods per week.

81. GENERAL CHEMISTRY. Recitations and practical work in the laboratory, where the student performs the experiments under the direction of the instructors. Qualitative analysis is started in this course.

Text-book: Remsen's "Introduction to the Study of Chemistry."

Sophomore Year—First Term, 4 theoretical and 2 practical

periods per week; Second and Third Term, 3 theoretical and 4 practical periods per week.

82. Qualitative Analysis. Lectures and laboratory work.

Text-book: Seller's "Qualitative Analysis."

Sophomore Year—Third Term, 2 theoretical and 4 practical periods per week.

Junior Year—First Term, 1 theoretical and 8 practical periods per week.

83. Qualitative Analysis. For students taking the Agricultural, Horticultural, Biological and General Courses.

Text-book: Seller's "Qualitative Analysis."

Junior Year—First Term, 1 theoretical and 8 practical periods per week.

84. Inorganic Preparations. The preparation and purification of inorganic compounds, fractional crystallization, etc.

Junior Year—First Term, 4 practical periods per week.

85. Theoretical Chemistry. A discussion of the fundamental laws and theories of modern chemistry, with their application to problems.

Text-books: Remsen's "Theoretical Chemistry," Talbot and Blanchard's "Electrolytic Dissociation Theory," and Wells' "Chemical Arithmetic."

Junior Year—First Term, 2 theoretical periods per week; Second and Third Term, 1 theoretical period per week.

86. Quantitative Analysis. Some of the simple determinations, so selected as to illustrate the general principles of the subject, are given. Neatness and accuracy are insisted upon in the laboratory, and in the conference period the chemistry and mathematics of each determination are thoroughly discussed.

Text-book: Olsen's "Quantitative Analysis."

Junior Year—Second Term, 1 conference and 12 practical periods per week.

87. Quantitative Analysis. For students taking the Agricultural, Biological and General Courses. A brief course illustrating some of the general principles in the quantitative study of chemistry. In the latter part of the course the agricultural students are given the option of the analysis of fertilizers, feeds, butter, milk, etc.

Text-book: Lincoln and Walton's "Quantitative Analysis."

Junior Year—Second Term, 1 conference and 6 practical periods per week; Third Term, 1 conference and 4 practical periods per week.

Senior Year—First Term, 4 practical periods per week.

88. Organic Chemistry. Recitations and lectures.

Text-book: Remsen's "Organic Chemistry."

Junior Year—3 theoretical periods per week.

89. Mineralogy. This is a course in determinative mineralogy. The more important minerals are identified by their more characteristic physical and chemical properties, the blow-pipe being an important aid.

Text-book: Brush and Penfield's "Determinative Mineralogy and Blowpipe Analysis."

Junior Year—First Term, 1 theoretical and 4 practical periods per week.

90. Organic Preparations. The preparation in the laboratory of some of the typical organic compounds, determination of boiling and melting points, lowering of freezing points by substances in solution, determination of vapor densities, and combustion methods for determination of carbon, hydrogen and nitrogen.

Reference books: Levy's "Organische Præparate," Remsen's "Organic Chemistry," and Gattermann's "Practical Methods of Organic Chemistry," translated by Schober.

Senior Year—Second Term, 16 practical periods per week.

91. Volumetric Analysis and Assaying.. This course is mostly acidimetry and alkalimetry, iodometric, oxidation, reduction and precipitation methods and the fire assay of gold, silver and lead ores.

Reference books: Sutton's "Volumetric Analysis" and Brown's "Manual of Assaying."

Junior Year—Third Term, 2 theoretical and 10 practical periods per week.

92. Agricultural Chemistry. The chemistry of soils, fertilizers, plant life, animal life, etc.

Text-book: Ingle's "Manual of Agricultural Chemistry."

Senior Year—First Term, 4 theoretical periods per week.

93. Agricultural Chemical Analysis. This is a thorough course in the analysis of fertilizers and fertilizing materials, feeding stuffs, butter, milk, sugar, starch, etc.

Text-book: "Methods of Analysis of the Association of Official Agricultural Chemists."

Senior Year—First Term, 24 practical periods per week.

94. Industrial, Physical and Electrolytic Chemistry. In this course the student becomes familiar with the advanced theories of chemistry and with some of the methods employed by research chemists. He also receives training in the practical methods employed in various chemical industries. Visits are made to ice, fermentation and gas plants; also to fertilizer, glass, iron, steel and white lead works.

Text-books: Jones' "Physical Chemistry," Smith's "Electrolytic Chemistry," and Thorpe's "Outlines of Industrial Chemistry."

Senior Year—Second Term, 6 theoretical and 4 practical periods per week; Third Term, 5 theoretical and 6 practical periods per week.

95. Research. This will occupy nearly all the student's time in the laboratory. The results will be embodied in the graduating thesis.

Senior Year—Third Term, 20 practical periods per week.

The periods mentioned for practical work in the laboratory are intended to be a minimum. The best students put in considerably more time than this, the laboratories being open to advanced students till 5 o'clock in the afternoons, and on Saturdays till noon. Energetic students are glad to avail themselves of these opportunities.

CIVIL ENGINEERING.

PROFESSOR TALIAFERRO.

MR. MCKAY.

The subjects pertaining to civil engineering are arranged with the object of emphasizing the fundamental principles through lectures and recitations in the class-room, supplemented by practical exercises in the field, drafting room and laboratory. Self-reliance being an essential factor in the success of an engineer, the student is encouraged in every way to develop this habit.

Equipment. In addition to minor engineering instruments, etc., the Department is at present equipped with three compasses, four transits and four levels.

The experimental laboratory contains a thousand pound Riehle cement testing machine and a hundred thousand pound Riehle machine for making tensile and other tests of the various kinds of materials. A description of this latter machine will be found on page 76, it having been purchased for the use of the Civil and Mechanical Engineering Departments. A description of the drafting and

blue print rooms used by the Civil Engineering Department will also be found on pages 76 and 77.

Some hydraulic apparatus of a character suited to the needs of the Department has been installed and other apparatus will be purchased as the funds permit.

TOURS OF INSPECTION—During the session members of the Senior and Junior classes, accompanied by an instructor, take trips for the purpose of making an examination of the different types of modern engineering construction.

COURSES OFFERED.

The subjects outlined, without exception, constitute a portion of the curriculum of students in the Civil Engineering Course.

100. ELEMENTARY MECHANICS. The elements of statics dealing with the composition and resolution of forces, moments, couples, simple machines and laws of friction. The elements of dynamics, dealing with velocity, acceleration, laws of motion, work, energy and applications to simple problems.

Freshman Year—Second Term, 4 theoretical periods per week.

101. ELEMENTARY SURVEYING. This course is intended to meet the needs of all students, except those in the Mechanical Engineering Course. It includes the use of the compass, transit and level, one or more methods of land surveying, the plotting and computing of areas, leveling and topographical surveying.

Texts: Robbin's "Elementary Treatise on Surveying," and notes.

Freshman Year—Third Term, 2 theoretical and 4 practical periods per week.

Senior Year—Third Term, 4 practical periods per week.

102. SURVEYING. This course includes the use and adjustment of engineering instruments, the methods of land surveying, the plotting and computing of areas, dividing of land, the theory of the stadia, true meridian lines, leveling, topographical surveying, railroad curves and cross sectioning.

Texts: Hosmer and Breed's "The Principles and Practice of Surveying," and Pence & Ketchum's "Field Manual."

Sophomore Year—First Term, 4 practical periods per week; Second Term, 3 theoretical periods per week; Third Term, 1 theoretical and 4 practical periods per week.

Junior Year—First Term, 4 theoretical and 4 practical periods per week.

103. General Engineering Drawing. Isometric and cabinet projections. Perspective. Water coloring. Paper stretching. Blue printing. Ornamental lettering, round writing and title work. Floor plans, elevations and architectural details. Mapping contours and profiling. Conventional signs.

Junior Year—First and Second Term, 8 practical periods per week; Third Term, 4 practical periods per week.

104. Railway Engineering. A study is made of preliminary and location surveys, cross sectioning, calculation of quantities, etc.

Text: Allen's "Railroad Curves and Earthwork."

Junior Year—Second and Third Term, 3 theoretical periods per week.

105. Bridge and Structural Design. This course includes the complete design and detailing of a steel roof truss and a plate girder; the detailing from standard commercial drawing sheets of floor beams, girders and columns; and the complete design of a bridge truss of either the Warren or Pratt type. The stresses are determined by both analytical and graphic methods.

Texts: Merriman and Jacoby's "Stresses," Cooper's "Bridge Specifications," "Cambria Hand Book," Thompson's "Bridge and Structural Design," Merriman and Jacoby's "Bridge Design."

Junior Year—Second and Third Term, 2 theoretical and 4 practical periods per week.

106. Mechanics of Materials. This course treats of the elasticity and resistance of materials of construction, and the mechanics of beams, columns and shafts.

Text: Merriman's "Mechanics of Materials."

Junior Year—Second Term, 3 theoretical periods per week; Third Term, 5 theoretical periods per week.

107. Hydraulics. The principles of hydraulics, flow through pipes, water supply, etc., are discussed in this course.

Text: Merriman's "Hydraulics."

Senior Year—First Term, 3 theoretical periods per week; Second Term, 5 theoretical periods per week.

108. Highway Engineering. This course includes the location, construction and maintenance of roads.

Texts: Spalding's "Roads and Pavements," and the reports of the Highway Division of the Maryland Geological Survey.

Senior Year—First Term, 4 theoretical periods per week.

109. Estimates of Cost. Lectures are given on the methods of estimating cost.

Senior Year—Third Term, 1 theoretical and 2 practical periods per week.

110. Concrete. Lectures on concrete and concrete construction.

Senior Year—Third Term, 2 theoretical periods per week.

111. Practical Problems. The necessity for practical work on the part of those desiring to enter upon engineering as a profession is obvious. To meet this condition a number of hours have been scheduled for field and laboratory work in practical problems relating to engineering. The scheduled hours constitute a minimum, the student being encouraged to give as much more of his time as is possible to problems of this character.

Junior Year—Third Term, 8 practical periods per week.

Senior Year—First Term, 12 practical periods per week; Second and Third Term, 4 practical periods per week.

112. Computing. This course is practical in its nature and includes many of the methods of computation used in the various branches of engineering.

Senior Year—Second Term, 6 practical periods per week.

113. THESIS. This involves a study of some selected problem in engineering.

Senior Year—Second Term, 4 practical periods per week; Third Term, 8 practical periods per week.

ELECTRICAL ENGINEERING AND PHYSICS.

PROFESSOR CREESE.
MR. CLARK.

ELECTRICAL ENGINEERING.

The work of the Electrical Engineering Course is so arranged as to give the student a thorough understanding of the fundamental principles of the various branches of electrical engineering, and at the same time to teach him to apply these principles to the practical problems with which the engineer has to deal. This purpose is carried out by means of lectures and recitations in the class-room, supplemented by practical work in the laboratories and drawing room.

EQUIPMENT. The Electrical Engineering Laboratories are located in the east wing of the new engineering building. The rooms on the first floor are used for lectures, recitations and experimental demonstrations by the instructor; a room on the second floor is equipped with apparatus for experimental work in telephone engineering; and the basement contains the dynamo room and the electrical engineering testing room.

The electrical engineering testing room is fitted up with such appliances as are used to the best advantage in engineering practice. Special effort has been made to purchase only the best instruments, as the use of poorer grades influences the student unfavorably. With poor instruments he cannot be taught to do satisfactory work and he becomes careless in the handling of them.

Among other things the following apparatus has been purchased for the testing laboratory:

A Leeds and Northrop potentiometer and Weston standard voltmeter and ammeter for calibrating the various portable measuring instruments used in the laboratory. A Queen & Co. standard photometer, for measuring the distribution of light from incandescent lamps, with all the necessary instruments and adjustments, including a Lummer-Brodhun photometer screen and carriage and a universal rotating socket for the test lamp. A large number of portable ammeters, voltmeters, and indicating wattmeters for direct and alternating current measurements; standard curve drawing voltmeter and ammeter; electrostatic voltmeter; frequency meters; silver and copper voltameters; Siemen's type electrodynamometer; watthourmeters, both direct and alternating current. A Leeds and Northrop standard portable testing set; heating devices; condensers; multiple circuit ammeter and voltmeter switches; tachometers. The above instruments were obtained from the General Electric Co., Queen & Co., Siemens and Halske, Westinghouse Electric and Manufacturing Co., and the Weston Electrical Instrument Co. In addition there are D'Arsonval galvanometers, both ballistic and light movement, furnished with lamp and scale; standard resistance boxes and bridges, including a very accurate decade resistance box and a decade resistance and Wheatstone Bridge; double and single contact keys, commutative keys, condenser keys, etc.

The lamps used for experimental purposes include direct and alternating current multiple carbon arc, magnetite arc, mercury and nernst lamps.

A General Electric Co. turbine, direct connected to a 35 kilowatt compound generator, has been installed for testing purposes in the Electrical and Mechanical Engineering Departments. This may be used in connection with the college lighting plant when needed.

The laboratory is so wired that connection may be made readily with any part of the College lighting plant, with the turbo-generator or with any of the apparatus in the dynamo room.

The dynamo room contains the following: A 10 kilowatt rotary converter of the latest type with speed limit and end play devices, to be used as a synchronous motor and as an alternating current

generator for testing purposes. A 5 horse-power variable speed commutating pole motor. A 7.5 kilowatt, 60 cycle, 220 volt, alternating current generator designed to operate either as a polyphase alternating current generator, synchronous motor, frequency changer, constant speed induction motor, or variable speed induction motor; the following parts are supplied with the set to make possible its operation in any of the above named ways;—a stationary armature for use either as an alternating current generator or as an induction motor field; a revolving field; a squirrel cage induction motor rotor with starting compensator having self-contained switches; an induction motor rotor with internal starting resistance; and an induction motor rotor with 3 phase collector rings, external resistance, and controller. A 2 kilowatt booster set, consisting of a series motor and shunt generator with armatures mounted on the same shaft. A 5 horse-power compound direct current motor and a 1.5 horse-power shunt motor fully enclosed. A 7.5 kilowatt, 120 volt, 3 phase self-excited generator direct connected to a 115 volt compound direct current motor. A motor-generator set consisting of a 3.6 horse-power shunt motor direct connected to a 2 kilowatt compound generator. A 3 horse-power, 3 phase induction motor. A 0.5 kilowatt shunt generator belt connected to a 0.5 horse-power variable speed shunt motor. Two 2 kilowatt transformers to transform power from 110 or 220 volts to 1100 or 2200 volts. Various types of starting rheostats with automatic overload and no voltage release; field rheostats. The above apparatus was made by the General Electric Co., the Westinghouse Electric & Manufacturing Co., the Crocker-Wheeler Co., Western Electric Co., and Reliance Electric and Engineering Co.

The main switchboards, consisting of two blue Vermont marble panels on pipe supports, are used to mount the necessary circuit breaker, rheostats, switches, etc., to control the generators and motors as well as the various circuits in the dynamo room and testing laboratory. Wire and water rheostats are arranged for load and regulation. Portable lamp-boards are so arranged that they may receive, at the proper voltage, from 0.04 to 100 amperes current. Portable ammeter, voltmeter and wattmeter switchboards have been constructed for use in machine tests. In addition to the special electrical engineering equipment, the College lighting plant

will be used for illustrative and experimental purposes. This plant contains, together with other apparatus useful in teaching electrical engineering, two Bullock generators of 40 kilowatts total capacity, and a switchboard equipped with a number of Weston ammeters, voltmeters and circuit breakers, and various types of rheostats.

An 8-inch Waltham bench lathe, with all the necessary attachments, has been installed in the dynamo room for the use of students in practical thesis work, and for making small articles, such as binding posts, connectors, etc., for use in the laboratories.

The telephone laboratory is equipped with two demonstration sets which were made by the Western Electric Co.

The magneto set consists of an oak panel upon which is mounted the following apparatus: Two line circuits with combined jacks and signals; double wound supervisory drops; complete cord circuits including ringing and listening keys, operator's telephone set, magneto generator, etc. On one line circuit is connected a wall type subscriber's set, and on the other, a desk set.

The common battery set consists of an oak panel carrying the following equipment: Two line circuits with lamp signals; complete cord circuits, including ringing and listening keys, operator's telephone set, magneto generator, split repeating coils, condensers, retardation coil, supervisory lamp, etc. On one of the line circuits is connected a wall type subscriber's set, and on the other a desk set.

Both panels have all the wiring exposed to enable the student to make a complete study of these two principal types of telephone exchanges.

COURSES OFFERED.

The subjects outlined constitute the work in electrical engineering.

120. Elementary Electricity. This subject includes: Static electricity, dealing with the phenomena of electricity in its potential form, and the conception of electric potential, quantity, capacity, etc.; kinetic electricity, including the study of the fundamental laws and units, as Ohm's Law, Joules' Law, units of current, electro-motive force, resistance, etc.; theory of magnetism, with its

phenomena and forces; and electro-magnetism, which is the foundation for dynamo electric machine design and construction.

Text: Nichols and Franklin's "Electricity and Magnetism."

Sophomore Year—Second and Third Term, 3 theoretical periods per week.

121. Electro-Magnetism and Construction of Dynamos. Beginning with the Junior Year and extending throughout the course, the principles involved in the construction and operation of both direct and alternating current dynamos and motors are taught. In teaching this subject, especial care is exercised that the mathematical and graphical developments shall be concise and logical. The direct current machine is first examined, and this results in a discussion of the different forms of armature, their windings, cores, commutators, etc.; the various fields; the methods of arranging the windings for different purposes; the shape and material of the magnetic circuits; the bearings, shafts, and bed-plates; the methods of insulation; a full description of the materials of construction; the selection of types suited to the performance of specific duties; and the proper method for installing and operating. The characteristic curves and efficiencies of the different types are also illustrated at some length.

Text: Franklin and Esty's "Dynamo Electric Machinery."

Junior Year—First and Third Term, 3 theoretical periods per week; Second Term, 4 theoretical periods per week.

122. Alternating Currents and Alternating Current Machinery. A complete study is made of the fundamental phenomena and theories dealing with the effects of alternating currents, both single-phase and poly-phase. Included in this course there are a large number of problems, both analytical and graphical, which are especially valuable for giving a clear appreciation of the effects of self-inductance, mutual-inductance, and capacity in single-phase and poly-phase alternating current circuits.

The theory, construction and practical applications of single-phase and poly-phase alternating current machinery, which includes generators, synchronous, induction and repulsion motors, rotary converters, transformers, regulators, etc., are taken in detail.

The fundamental principles of the machinery are developed in the class-room and applied concurrently in the laboratory and designing room with special reference to their practical utilization.

Texts: Franklin and Esty's "Alternating Currents," McAllister's "Alternating Current Motors," and Karapetoff's "Electric Circuit."

Senior Year—First and Third Term, 5 theoretical periods per week; Second Term, 3 theoretical periods per week.

123. Electric Lighting and Power Plants. This work begins with the study of the different systems of distribution used in arc and incandescent lighting, and the discussion of the advantages and disadvantages of each from both financial and engineering standpoints. Attention is given to the best methods of obtaining good regulation, as upon this satisfactory lighting service depends. The proper arrangement and wiring of switchboards and the instruments which they contain, as well as the latest methods of protection from lightning, are treated in detail.

The student is made familiar with the manufacture and characteristics of the incandescent arc and many new forms of electric lamps; the selection of lamps for specific commercial duties; the principles underlying correct interior and exterior illumination; the manufacture of cables for underground work; and the materials used in overhead and conduit systems of distribution.

The proper arrangement, the type and the size of boilers, engines and dynamos in a central station for lighting and power purposes, are obtained by the study of typical plants in this country and abroad. Many problems involving the calculation of the wire and materials needed for the various system of distribution are given. These problems require for their solution a knowledge of the rules of the Underwriters' Association."

Text: Franklin's "Electric Lighting."

Senior Year—First and Second Term, 2 theoretical periods per week.

124. Telephones and Telegraphs. This subject deals with the applications of electricity to telephony and telegraphy, with the details and construction of the instruments, switchboards and line work. In this course are included a study of telephone receivers

and transmitters; the multiple switchboard; common battery circuits; manual and automatic exchanges; traffic regulation; intercommunicating systems; line construction; the effects of self-inductance, capacity and other disturbing influences; location of faults; simplex, duplex and quadruplex telegraphy; wireless telegraphy; and simultaneous telegraphy.

Text: Miller's "American Telephone Practice."

Senior Year—Second and Third Term, 2 theoretical periods per week.

125. Electric Railway Engineering. The student is made thoroughly familiar with the following topics relating to electric railway work; the power, capacity, arrangement and methods of installation of the engines and boilers; the type, method of control and disposition of the generators in the dynamo room; the proper arrangement of the switchboards and the instruments to be used; the line work, including the various trolley and conduit constructions; the method of laying the track, with the weight and bonding of the rails; the motor equipment and car wiring; the type, power and control of the motors and the requirements for special conditions; the applications of the storage battery; the cost of installation and operation of the power plant; the management of the plant; and the modifications required for high speed electric traction.

Text: Sheldon and Hausman's "Electric Traction and Transmission Engineering."

Senior Year—Third Term, 3 theoretical periods per week.

126. Primary and Secondary Batteries. The theories involved in the primary cell are developed and attention is directed to the various measurements and calculations pertaining to the subject. A study is made of the construction and use of the latest types of commercial cells.

Following the preliminary work on the primary cell, the study of the lead storage battery is taken up in detail. The work includes the general theory, the mechanical construction and the commercial use of the various types of cells, together with the chemical and electrical actions encountered. In connection with the stor-

age cell a study is made of the construction and use of the different forms of the auxiliary apparatus, such as end-cell switches, boosters, etc.

Text: Lyndon's "Storage Battery Engineering."

Junior Year—Third Term, 2 theoretical periods per week.

127. Electrical Engineering Laboratory. The study of direct current instruments. The measurements of resistance, current, and electromotive force; the use of the Wheatstone Bridge and galvanometers; loop and capacity tests of cables; calibration of instruments; study of direct current machines; testing of arc lamps; photometry; the operation of machinery and determination of the characteristic curves and efficiencies of machines.

Junior Year—First and Second Term, 4 practical periods per week; Third Term, 6 practical periods per week.

128. Electrical Engineering Laboratory. The determination of inductance, impedance, condensance, etc.; measurement of power in alternating current circuits; regulation and efficiency tests of alternators and transformers; parallel operation of alternators; phase characteristics, power factor, etc., of synchronous motors; polyphase transformation; mesh and star connections of transformers; tests of induction and synchronous motors.

Senior Year—First and Second Term, 8 practical periods per week; Third Term, 6 practical periods per week.

129. Electric Machine Design. Practical calculation of dynamos, including detail calculations of field cores, armature windings, frames, commutator, armature core and collecting devices.

Junior Year—Third Term, 6 practical periods per week.

130. Electric Machine Design. This work includes the design of reactance coils, transformers, induction motors, alternator armatures, field windings and frames, and special problems in the transmission of power.

Senior Year—Third Term, 6 practical periods per week.

131. Thesis. During the Senior Year each student is required to prepare a graduation thesis. In the preparation of the thesis

the student is given the opportunity to apply his training to original research.

Senior Year—8 practical periods per week.

PHYSICS.

The physical lecture room and laboratory are located in the new engineering building, in rooms excellently adapted to the purpose. The Department is well supplied with apparatus for lecture room demonstrations and for students' individual laboratory work, and new pieces of apparatus are added to the equipment each year.

COURSES OFFERED.

140. ELEMENTARY PHYSICS. The course consists of lectures, recitations and experimental demonstrations by the instructor on the mechanics of solids, liquids and gases. The student is required to work a number of problems, and his attention is directed to the practical application of the principles studied.

Text: Carhart & Chute's "Principles of Physics."

Sub-Freshman Year—3 theoretical periods per week.

141. PHYSICS. The course begins with a review of mechanics, after which heat, electricity and magnetism, sound and light, are taken up successively by lectures, recitations, problems and demonstrations. A knowledge of the elements of plane trigonometry is required for entrance. The laboratory work consists of a series of experiments, mainly quantitative, designed to illustrate and verify the laws and principles considered in the class-room and to develop in the student skill in manipulation and accuracy in making precise measurements.

Texts: Carhart's "College Physics" and Ames and Bliss' "Manual of Experiments in Physics."

Sophomore Year—First and Third Term, 3 theoretical and 4 practical periods per week; Second Term, 3 theoretical and 2 practical periods per week.

142. Physics. Advanced work will be provided for students who have completed the preceding courses, and who wish to continue the study of physics.

ENGLISH AND CIVICS.

PROFESSOR BOMBERGER.

ASSOCIATE PROFESSOR RICHARDSON.

MR. BYRD.

This Department, as its name implies, covers the work of two distinct courses of instruction. It seeks to prepare the student by systematic training in the history, structure and use of the English language, for the highest development of his mental powers and for the complex duties and relations of life; and, further, to fit him for the active and intelligent exercise of his rights and duties as a man and citizen.

The course in English, of a necessity, lies at the base of all other courses of instruction. Clear and comprehensive knowledge of his mother tongue is absolutely necessary to the student in pursuing any line of college work. Nor is this all; for aside from the practical value of the English instruction as an aid to other branches of study, and as a preparation for business and profession, it is to his training in this Department, in connection with his study of history, the classics and modern languages, that the student must look for the acquiring of the general culture which has always been the distinguishing mark of the liberally educated man. The English work, which is common to all courses, consists of the study of the structure of the English language, English and American literature, theoretical and practical rhetoric, logic, psychology, critical reading and analysis, and constant exercise in expression, composition and theme writing.

The course in civics is especially designed to prepare young men for the active duties of citizenship. The first year is devoted to the study of general history, followed by the principles of civil government, constitutional history, political economy, with special refer-

ence to current, social and industrial problems, and, finally, lectures on the elements of business and international law.

ENGLISH.

COURSES OFFERED.

160. Preparatory English. Technical grammar, spelling and composition writing.

Text used: Maxwell's "Exercise in English."

Preparatory Year—5 theoretical periods per week.

161. Sub-Freshman English. Thorough review of technical grammar, practical word analysis, composition and letter writing.

Texts used: Kittridge & Arnold's Series and Swinton's "Word Analysis."

Sub-Freshman and First Year—5 theoretical periods per week.

162. Farm Literature. A reading course in farm periodicals and other agricultural literature, with instruction in the taking and systematization of notes.

First and Second Year—2 practical periods per week.

This course is open as an elective to the Short Winter Course students during their stay at the College.

163. Rhetoric and Composition. Principles and practice of rhetoric and composition. Work in rhetoric consists of a study of the principles of diction, the sentence, the paragraph, the discourse, forms of prose, the nature, form and structure of poetry, and readings from leading American authors.

Work in composition consists of twelve themes, especially adapted to the requirements of the class.

Text used: Brooks and Hubbard's "Composition-Rhetoric."

Freshman Year—5 theoretical periods per week.

164. Practical English. Lectures covering special processes in composition.

Freshman Year—First and Second Term, 2 practical periods per week.

165. Composition. Practice in English composition. Special lectures. Work in composition consists of twelve themes discussing English classics studied in class, or subjects involved in the study of civics.

Sophomore and Second Year—1 theoretical period per week.

166. American Literature. A study of the most important writers, with a view to giving the student an exact knowledge of their works.

Text used: Halleck's "American Literature."

Sophomore Year—3 theoretical periods per week.

167. English Literature. General study of the history and chief writers of English literature.

Text used: Long's "English Literature."

Junior Year—First and Second Term, 3 theoretical periods per week.

168. Logic. Principles and practice of logic.

Text used: Jevon's Hill's "Logic."

Junior Year—Third Term, 3 theoretical periods per week.

169. Advanced English. An elective course.

Junior Year— 4 theoretical periods per week.

170. Composition. Advanced work in English composition. Special lectures. Nine themes illustrating special processes.

Junior Year—1 theoretical period per week.

171. English Classics. Critical study of English classics.

Senior Year—4 theoretical periods per week.

172. Psychology. Principles of Psychology. Text-book and lectures.

Text used: James' "Psychology."

Senior Year—First Term, 4 theoretical periods per week.

173. Pedagogics. A study of the history of education.
Senior Year—Second and Third Term, 4 theoretical periods per week.

174. Composition. Special themes illustrating the principles of debate, oration and short story.
Senior Year—1 theoretical period per week.

HISTORY.

COURSES OFFERED.

180. United States History.
Preparatory Year—First and Second Term, 5 theoretical periods per week.

181. English History. Lectures on outlines of English history.
Preparatory Year—Third Term, 5 theoretical periods per week.

182. General History. Outlines of general history.
Text used: Myers' "General History."
Sub-Freshman Year—First Term, 2 theoretical periods per week; Second and Third Terms, 3 theoretical periods per week.

183. Modern European History.
Text used: Robinson's "European History."
Freshman Year—3 theoretical periods per week.

184. Advanced History. Selected topics. Elective.
Junior Year—4 theoretical periods per week.

CIVICS.

COURSES OFFERED.

200. Civics. Civil Government in the United States.
Text used: Hindsdale's "American Government."

Junior Year—First and Second Term, 3 theoretical periods per week.

201. Political Economy. Principles of political economy and industrial development of the United States, economic science and current problems.

Text used: Seager's "Introduction to Economics."

Senior Year—4 theoretical periods per week.

202. Business Law. Lectures on principles of law as used in every-day life and business.

Text used: Huffcut's "Elements of Business Law."

Junior Year—Third Term, 3 theoretical periods per week.

Second Year—Second Term, 3 theoretical periods per week.

203. Advanced Economics. Special study of economic problems. Elective.

Senior Year—4 theoretical periods per week.

204. Advanced Civics. Comparative study of modern governments. Elective.

Senior Year—4 theoretical periods per week.

ENTOMOLOGY AND ZOOLOGY.

PROFESSOR SYMONS.
ASSOCIATE PROFESSOR CORY.

Instruction is given in this Department with a view first, to giving the student the general knowledge of invertebrate and vertebrate zoology, which is necessary as a foundation science for an agricultural education; second, to fit the student in elementary and advanced entomology, both economic and systematic, so that he may pursue this specialty after graduation. A course in economic entomology and zoology is also given to provide those students who are specializing in any of the allied agricultural sciences, with the information which is essential to their ideal development.

Students wishing to take advanced work in invertebrate zoology are advised to select some subject in entomology. As the State and Experiment Station entomological work is conducted through this Department, there are special advantages for students in applied entomology.

The reference library is unusually complete, containing in addition to the standard works, a majority of the principal entomological and zoological publications. The laboratory is supplied with a large collection of insects for the use of students, and is well equipped with microscopes and other apparatus necessary for practical work in entomology and zoology.

The insectaries of the State Horticultural Department and the Maryland Experiment Station are joined to the laboratory, and afford facilities for special investigation to a limited number of advanced students.

COURSES OFFERED.

220. Animal Life and Elementary Entomology. A consideration of animals and insects from a nature study standpoint. These courses are designed to show the student the importance of these subjects and to develop and foster an interest in nature.

Preparatory Year—First Term, 2 practical periods per week.

Sub-Freshman Year—Third Term, 2 practical periods per week.

221. General Zoology. This course is offered to all students taking agriculture and allied sciences, and is introductory to all other work in this Department. A study is made of the general form, characteristics, habits and classification of animals from the lowest to the highest forms. It is designed to give the student that knowledge of animal life without which his education is incomplete.

Freshman Year—Second Term, 3 theoretical and 4 practical periods per week.

222. Invertebrate Zoology. In this course a thorough study will be made of the anatomy, development and classification of in-

vertebrate animals. Special attention is given to those forms which are intimately associated with the development of allied sciences.

Sophomore Year—First and Third Term, 2 theoretical and 2 practical periods per week; Second Term, 2 theoretical and 4 practical periods per week.

223. General Entomology. This course is offered all students who have completed course 221. It consists of a study of insects, their classification, structure and relation to man. The practical work will consist of laboratory studies of the structures of typical forms, and a study in the field of the habits of insects, particularly those which are injurious to crops.

As an aid to this study, the student is required to make a collection of the more common insects which appear in the spring.

Sophomore Year—Third Term, 2 theoretical and 4 practical periods per week.

224. Economic Entomology. This course will embrace a detailed study of the life histories of insects of economic importance and the most approved means of control. Practical work will be given in the preparation and application of insecticides and the operation of spraying machinery, of which the Department has a large assortment.

Junior Year—First Term, 2 theoretical and 4 practical periods per week.

225. Economic Entomology. This course is an expansion of course 224 and is required of students in the Biological Course specializing in entomology.

Junior Year—First Term, 1 theoretical and 4 practical periods per week.

226. Vertebrate Zoology. A thorough study of the structure, development, classification and distribution of vertebrates is made in this course. Special attention is given to birds and other vertebrates of economic importance.

Junior Year—Second and Third Term, 1 theoretical and 4 practical periods per week.

227. Systematic Entomology. This is designed for students in the Biological Course specializing in entomology. It will consist of a comparative study of insect structures, particularly those used in the arrangement of insects into natural groups.

Junior Year—Second and Third Term, 2 theoretical and 4 practical periods per week.

228. Systematic Entomology. This course is an expansion of course 227 and is required of students in the Biological Course specializing in entomology.

Junior Year—Third Term, 1 theoretical and 6 practical periods per week.

229. Farm Zoology. This course is offered to students in the First Year of the two-year courses. It includes a study of reptiles, birds, mammals and other animals of economic importance which commonly occur on the farm.

First Year—Third Term, 2 theoretical periods per week.

230. Insect Pests. This course is designed for students in the two-year courses and the various short courses, previous courses in entomology not being prerequisite. The course includes a study of insects from the standpoint of general farm practice.

Second Year—Third Term, 2 theoretical and 4 practical periods per week.

231. Insecticides and Spraying. Special attention is given in this course to the principles involved in the application of insecticides. A study is made of the different insecticides and spraying apparatus on the market. In the practical work an opportunity will be given to observe and operate a large number of the spraying machines and apparatus offered for sale. A special spraying laboratory has been fitted for students taking this course.

Second Year—Second Term, 2 theoretical and 2 practical periods per week.

232. Applied Entomology. This course is given students in the Horticultural Course who have completed course 224. It includes a more detailed study of some of the insects with which the

trained horticulturist will have to deal, a consideration of the spraying methods used in large fruit plantings, and the control of insect pests in greenhouses and florists' establishments.

Senior Year—Second Term, 2 theoretical and 4 practical periods per week.

233. Animal Parasites. This course is designed especially for students specializing in animal husbandry. The course involves a discussion of the life history and habits of the more important internal and external parasites of domestic animals. It also includes a study of the treatment employed in the control of these pests.

Senior Year—Third Term, 2 theoretical and 4 practical periods per week.

234. Advanced Entomology. This includes courses open to students specializing in entomology.

(a) Insect Anatomy. A study is made of methods of insect histology in connection with a study of the gross and microscopic anatomy of the body of an insect.

(b) Wing Venation. This course involves a study of the homologies of the wing veins of the several groups of insects, showing how the natural relation of those groups may be traced by means of the veins.

Additional elective courses for students in the Biological Course and for post-graduate students are offered in Insect Taxonomy, Morphology and Ecology, Experimental Methods and Insect Delineation.

Senior Year—7 theoretical and 12 practical periods per week.

235. Entomological Research. Independent research on some definite problem in entomology, the results of which are usually incorporated in the graduation thesis.

Senior Year—1 theoretical and 4 practical periods per week.

HORTICULTURE.

PROFESSOR SYMONS.
PROFESSOR BECKENSTRATER.
PROFESSOR MONROE.
ASSOCIATE PROFESSOR ANSPON.
MR. BURRELL.

Recognizing the great importance of every phase of this subject in the State, a SCHOOL OF HORTICULTURE has been formed in conjunction with the State Horticultural Department during the past year, with a view of offering instruction to students desiring to specialize in either Pomology, Vegetable Culture or Landscape Gardening and Floriculture. The courses in this subject have been therefore revised, providing for general courses in all phases of Horticulture during the Freshman and Sophomore years and permitting them to specialize in either of the above subjects in the Junior and Senior years.

The arrangement of the courses is, of necessity, subject to such adjustment as will advance the best interests of the students. The object in each course will be to give practical and theoretical training in fruit growing, truck farming and commercial landscape gardening and floriculture. Under the present arrangement the specialists in each subject will have greater opportunity to keep familiar with the progress of their work through the practical demonstration and experimental work in the State. Where one man has been required to give all the instruction in horticulture heretofore, four men are now available to give a part of their time to this important work.

The students will be required to do practical work throughout the course, and in addition, they must have spent at least two summers or the equivalent, during the four years' course, in an approved commercial establishment dealing with the subject in which they are specializing. The equipment of each Department is being steadily increased and the orchards, gardens and greenhouses of College and Experiment Station afford unlimited opportunities for practical observation. In addition, the students of each course will

be expected to take trips to selected commercial orchards, truck farms, greenhouses and markets.

The SCHOOL OF HORTICULTURE offers two regular courses: (a) A four-year course leading to the degree of Bachelor of Science; (b) a two-year course for proficiency in which a Certificate is awarded.

The work given in the two-year course will also be more efficient, as for the most part the courses will be given separately from those of the regular four-year students. These students will also have an opportunity to specialize in any phase of horticulture in which they are interested during their second year.

POMOLOGY.

240. INTRODUCTORY HORTICULTURE. This is an introductory course designed to acquaint the student with the materials and problems with which horticulture deals, and to present to the prospective student the field of horticulture as a possibility in which he may find a future career.

Preparatory Year—Third Term, 2 practical periods per week.

241. ELEMENTARY POMOLOGY. An introductory course dealing with the principles of the subject. It is intended for all students in Agriculture and Horticulture, and is prerequisite to all the courses in Pomology. Lectures, recitations and practical exercises.

Freshman and First Year—Third Term, 1 theoretical and 2 practical periods per week.

242. PRINCIPLES OF POMOLOGY. A continuation of course 241. A study of the methods of propagation, pruning and planting.

Sophomore Year—Second Term, 2 theoretical and 4 practical periods per week.

First Year—First and Second Term, 2 theoretical and 4 practical periods per week.

243. COMMERCIAL POMOLOGY. This course considers the harvesting, packing, storing and marketing of fruits. Special stress is given

to transportation and market problems. The leading commercial varieties of fruit are also studied. Lectures, recitations and practical exercises.

Junior and Second Year—First Term, 2 theoretical and 2 practical periods per week.

244. Small Fruits for Home Garden. A study of the special kinds, varieties and seasons of fruits for the home use, and of cultural methods whereby the ripening season may be materially lengthened.

Junior and Second Year—Second Term, 1 theoretical and 4 practical periods per week.

245. Commercial Small Fruit Culture. A study of methods of harvesting, packing and marketing small and bush fruits and grapes. Special attention is given market problems and shipping associations.

Junior Year—Third Term, 2 theoretical and 4 practical periods per week.

246. Practical Pomology. A study of the orchard sites, soils, varieties and planting plans for the orchard; cultivation, cover crops, fertilizers and pruning as practiced in commercial orchards.

Junior Year—Second Term, 2 theoretical and 4 practical periods per week; Third Term, 2 theoretical and 2 practical periods per week.

247. Systematic Pomology. This course embraces a study of the evolution and relationship of the economic fruits. It includes descriptions of fruit and the identification of the more common varieties of Maryland. Fruit judging and the selection of fruits for exhibition purposes are also considered. Lectures, recitations and practical exercises.

Senior Year—First Term, 2 theoretical and 4 practical periods per week; Second Term, 2 theoretical and 2 practical periods per week.

248. Systematic Small and Vine Fruit Culture. A study of the development and relationship of the small fruits; including the description, classification and identification of varieties.

Senior Year—First Term, 2 theoretical and 2 practical periods per week.

249. Literature of Fruit Growing. History and growth of horticultural writings. A study of important publications, current horticultural periodicals and methods of research.

Senior Year—Second Term, 1 theoretical and 2 practical periods per week.

250. Advanced Small Fruit Culture. A continuation of course 248, taking up the history, evolution and location of the principal small fruit sections, and a discussion of varieties, planting, training, care and fertilization.

Senior Year—Third Term. 2 theoretical and 4 practical periods per week.

251. Advanced Pomology. Special problems in adaptation, propagation, cultivation and pruning as they arise in commercial orchards.

Senior Year—Third Term, 2 theoretical and 2 practical periods per week.

252. Nut Culture. This course is designed to cover the subject in a general way; it includes the propagation, orchard management and marketing of the leading American nuts.

Senior Year—Third Term, 2 theoretical and 2 practical periods per week.

253. Home Fruit Growing. A study of fruit growing for home consumption. The problems confronting the amateur in the suburban lot are considered. Elective.

Junior and Senior Year—2 theoretical and 2 practical periods per week.

254. Citrus and Sub-Tropical Fruits. A general course in Citrus and sub-tropical fruits of commercial importance. Elective.
Junior and Senior Year—2 theoretical periods per week.

255. Plant Breeding. A general course in the science and art of plant breeding. Observed factors in organic evolution, variation and heredity are considered in so far as they have a bearing upon this subject. The discussion of the various methods of breeding and improvement are accompanied by practice in the orchard and greenhouses.
Senior Year—Second Term, 2 theoretical periods per week; Third Term, 2 theoretical and 2 practical periods per week.

256. Research Work and Thesis. This course is given to test and develop the student's power of observation and initiation. The work will be arranged with each student, individually, and the results will be written up in form of a thesis, which is required of all candidates for the Bachelor of Science Degree.
Senior Year—First and Second Term, 2 practical periods per week; Third Term, 6 practical periods per week.

257. Seminary. At the seminary meetings various problems are presented throughout the year.

258. Post-Graduate Work. An opportunity for advanced work is given to candidates who have the Bachelor of Science Degree.

VEGETABLE CULTURE.

260. Principles of Vegetable Culture. General principles of vegetable growing, including a study of seasonal and cultural requirements, propagation and relative commercial value of the different vegetable crops.
Freshman and First Year—Second Term, 2 practical periods per week.

261. Practical Vegetable Gardening. A course designed to carry out as far as possible in a practical way the different phases of vegetable culture. It includes cropping of land, arranging crops in systematic rotation, sowing, selecting and purchasing of seed, fertilizing crops, practical use of machinery in garden, harvesting of crops with reference to home as well as commercial gardens. Practical work in hotbeds and cold frames. The student will be expected to assist in growing certain vegetable crops.

Sophomore Year—Third Term, 2 theoretical and 4 practical periods per week.

262. Systematic Vegetable Culture. This course includes a systematic study of varieties of the more important vegetable crops and their relative commercial value, and practice in judging and scoring vegetables.

Junior Year—First Term, 2 theoretical and 2 practical periods per week.

263. Literature of Vegetable Culture. History and development of vegetable crops. The method of breeding used in bringing about this development. The work of prominent Vegetable Culturists. A review of vegetable work and bulletins of Experiment Stations and a study of current vegetable publications.

Junior Year—Second and Third Term, 2 theoretical periods per week.

264. Vegetable Growing Under Glass. The use of the different glass structures in vegetable culture. The starting of early plants under glass; forcing vegetables and growing winter crops in greenhouses.

Junior Year—Second Term, 1 theoretical and 8 practical periods per week; Third Term, 1 theoretical and 4 practical periods per week.

Second Year—Second Term, 1 theoretical and 8 practical periods per week.

265. Vegetable Culture and Its Relation to the Canning Industry. Special reference to the vegetable crops and varieties grown for canning.

Junior and Second Year—Third Term, 2 theoretical periods per week.

266. Commercial Vegetable Culture. Harvesting, grading, packing and marketing of vegetables. The seasonal sources of supply of our more important markets. This course includes a study and inspection of Baltimore and Washington markets.

Senior and Second Year—First Term. 3 theoretical and 6 practical periods per week.

267. Advanced Vegetable Culture. A continuation of courses 260 and 261. Prerequisites, courses 260 and 261.

Senior Year—Second and Third Term, 4 theoretical and 4 practical periods per week.

Second Year—Third Term, 4 practical periods per week.

268. Experimental Vegetable Culture. A study of Experiment Station methods. The planning of definite experiments and estimating approximate requirements for execution of plans.

Senior Year—Third Term, 4 theoretical and 4 practical periods per week.

269. Research and Thesis. The prime object of this work is to test the student's power of observation and initiation. The individual student will be required to select some special line of research in Vegetable Culture and submit the same to the head of the Department for approval. The results must be written up for a thesis, which is required of a candidate for the Bachelor of Science Degree.

Senior Year—First and Second Term, 4 practical periods per week; Third Term, 8 practical periods per week.

LANDSCAPE GARDENING AND FLORICULTURE.

280. Principles of Landscape Gardening. An elementary course dealing with home surroundings, ornamental plants and their arrangement, with practical work in planning and designing.

Freshman and First Year—First Term, 2 practical periods per week.

281. Ornamentation of Home Grounds. Continuation of course 280. This course deals more in detail with the beautifying of home surroundings.

Sophomore and Second Year—First Term, 2 theoretical and 4 practical periods per week.

282. Aesthetics of Landscape Gardening. A course in the underlying principles of the art, designed to give the student a broad conception of the art.

Junior Year—First Term, 2 theoretical and 2 practical periods per week.

283. Floriculture. This course is devoted to the soil, culture and methods of handling greenhouse plants and flowers on a commercial scale.

Junior Year—Second Term, 2 theoretical and 4 practical periods per week.

Second Year—Third Term, 2 theoretical and 4 practical periods per week.

284. Greenhouse Construction. A study of the types of houses, materials and methods of heating and ventilating used in greenhouse construction, with their adaptation to various purposes.

Junior and Second Year—Second Term, 2 theoretical and 2 practical periods per week.

285. Plant Materials. This course comprises a study of the characters, habits, culture and suitability for Landscape work of ornamental trees, shrubs and herbaceous perennials, together with their planting and arrangement.

Junior and Second Year—Third Term, 2 theoretical and 4 practical periods per week.

286. Tree Surgery. A course in the treatment of trees and shrubs, including technical details in pruning to control insect enemies and fungus diseases.

Junior Year—Third Term, 1 theoretical and 4 practical periods per week.

287. Landscape Design. A course dealing with the composition of public parks and private grounds, with practical work in planning and designing.

Senior Year—First Term, 2 theoretical and 4 practical periods per week.

288. Civic Art. This course deals with the principles of Landscape Gardening as applied to city, village and rural design and improvement.

Senior Year—First Term, 2 theoretical and 2 practical periods per week.

289. Planting Plans. This course deals with planting designs and plans, and detailed planting plans for public and private grounds.

Senior Year—Second Term, 2 theoretical and 6 practical periods per week.

290. Floral Decoration. The use of cut flowers and plants in decorations, baskets and designs.

Senior Year—Second Term, 2 practical periods per week.

291. Exotics. In this course a study is made of the tender plants suitable for landscape work.

Senior Year—Third Term, 2 theoretical periods per week.

292. History and Literature of Landscape Gardening. A reference course dealing with the literature and the different stages of development of the art.

Senior Year—Third Term, 2 theoretical periods per week.

293. Landscape Practice. This course takes up the study of grading plans and working drawings, together with specifications and contracts.

Senior Year—Third Term, 2 theoretical and 8 practical periods per week.

294. Research and Thesis. The designing, planning and detail planting plans of some practical landscape problem.

Senior Year—First Term, 2 practical periods per week; Second Term, 4 practical periods per week; Third Term, 2 theoretical and 8 practical periods per week.

LANGUAGES.

PROFESSOR SPENCE.

The Department of Languages embraces the study of three branches: Latin, German and French. All students are required to take the courses in German. Students may elect to take Latin in the Freshman Year in place of History, provided that they have completed the work outlined for the Sub-Freshman Class or its equivalent.

The course of study in Latin is given with two ends in view—first, to train the mind into accurate and close methods of reasoning; second, to give the student a more thorough and comprehensive knowledge of his own language than he could otherwise acquire. Especial attention is paid to Latin forms and terminations and to the derivation of English words from Latin roots.

So large a proportion of modern scientific literature is in German and French that a reading knowledge of these languages has become almost essential to the student pursuing advanced courses in the various spheres of scientific research. Instruction in these branches is given, therefore, to enable the student to translate intelligently the works of French and German masters in the domain of science, for, frequently there are no English versions of their works. As the student becomes more familiar with foreign scientific terms and construction, he is required to translate treatises bearing upon the special line of work which he may be pursuing.

LATIN.

COURSES OFFERED.

300. GRAMMAR AND COMPOSITION. The aim of this course which is given in the Preparatory Year, is to make the student conversant with Latin forms and terminations, and to enable him to read simple Latin prose.

Text-books: Shedd's "Word-value, First Latin Book," Collar and Daniel's "First Year Latin," or Bennett's "First Year Latin."

Preparatory Year—4 theoretical periods per week.

301. SYNTAX AND TRANSLATION. Reading of Cæsar and Sallust with prose composition selected from the text read.

Text-books: To be selected later.

Sub-Freshman Year—3 theoretical periods per week.

Freshman Year—3 theoretical periods per week.

302. MYTHOLOGY, TRANSLATION AND LITERATURE. Reading of Virgil and Horace with lectures on mythology and Latin literature.

Text-books: To be selected later.

Sophomore Year—4 theoretical periods per week.

303. TRANSLATION, PROSODY AND HISTORY. Reading of Cicero, Tacitus and Juvenal, with lectures on Roman life and politics. Elective.

Text-books: To be selected later.

Senior Year—4 theoretical periods per week.

GERMAN.

COURSES OFFERED.

320. GRAMMAR AND CONVERSATION.

Text-book: Bacon's "German Grammar."

Freshman Year—3 theoretical periods per week.

321. TRANSLATION.

Text-books selected from the following: Hauff's "Das Kalte

Herz," Schiller's "Der Neffe als Onkel," Hillern's "Hoher als die Kirche," Grandgent's "Ali Baba and the Forty Thieves," Sybel's "Die Erhebung Europas," Walther's "Algemeine Meereskunde," Northrup's "Geschichte der Neuen Welt," Brant and Day's "Scientific German," Wallentin's "Grundzuge der Naturlehre," and others.

Sophomore Year—3 theoretical periods per week.

322. TRANSLATION. Selected readings from various literary and scientific texts and periodicals.

Junior Year—3 theoretical periods per week.

Senior Year—4 theoretical periods per week.

FRENCH.

COURSES OFFERED.

340. GRAMMAR AND COMPOSITION.

Text-book: Chardenal's "Complete French Course" (Revised).

Junior Year—First and Second Term, 4 theoretical periods per week.

341. TRANSLATION.

Text-books: Super's "French Reader," Rougemont's "La France," Fenelon's "Telemaque."

Junior Year—Third Term, 3 theoretical periods per week.

342. TRANSLATION. Selections from standard authors. Elective.

Senior Year—4 theoretical periods per week.

MATHEMATICS.

PROFESSOR HARRISON.

MR. MCKAY.

Mathematics is the basis upon which scientific information rests. A knowledge of the study is necessary, as much from the utilitarian point of view as from the mental training its acquisition gives. Its

importance as a factor in our College course takes its rise from the former consideration. All instruction in this work is with a view to the equipping of students for the more practical work soon to follow.

The class work in mathematics in the several courses consists of arithmetic, bookkeeping, algebra, geometry (plane and solid), trigonometry, analytic geometry, differential and integral calculus, and their application to mechanics, engineering, physics and surveying.

No matter what vocation a man intends to follow, a knowledge of business forms and methods of systematic accounts is a requisite to success. To be able to use an ordinary compass or transit for the purpose of laying out, dividing and calculating the area of land, or running out lines and leveling for the purpose of drainage, is a necessary accomplishment for every intelligent farmer.

COURSES OFFERED.

360. ARITHMETIC. Review of problems involving mensuration, percentage, interest and proportion.
Text-book: Wentworth-Smith's.
Preparatory Year—2 practical periods per week.
First Year—First Term, 3 theoretical periods per week.

361. BOOKKEEPING. Brief course in double entry.
First Year—Third Term, 4 practical periods per week.

362. ALGEBRA. A thorough course in elementary algebra.
Text-book: Wentworth's.
Preparatory Year—5 theoretical periods per week.
Sub-Freshman Year—4 theoretical periods per week.

363. PLANE GEOMETRY. Books one to five, inclusive.
Text-book: Wentworth's.
Sub-Freshman Year—4 theoretical periods per week.

364. MATHEMATICS. Practical applications of the fundamental laws of elementary mathematics. Lectures will be given on the

subjects considered in this course whenever they are deemed necessary.

Freshman Year—First Term, 2 practical periods per week.

365. Solid Geometry. Books six to eight, inclusive, with selected practical problems.

Text-book: Wentworth's.

Freshman Year—First Term, 4 theoretical periods per week.

366. Trigonometry. Deduction of formulas and practical applications of same in the solution of right and oblique triangles, etc.

Text-book: Wentworth's.

Freshman Year—Second Term, 5 theoretical periods per week; Third Term, 2 theoretical periods per week.

367. Advanced Algebra. Elementary theory of equations, partial fractions, etc.

Text-book: Taylor's.

Freshman Year—Third Term, 3 theoretical periods per week.

368. Analytic Geometry. Geometry of two dimensions, loci of general equations of second order, higher plane curves, etc.

Text-book: Wentworth's.

Sophomore Year—First Term, 5 theoretical periods per week; Second Term, 3 theoretical periods per week.

369. Calculus. A discussion of the methods used in differentiation and integration, and the application of these methods in determining maxima and minima, areas, volumes, moments of inertia, etc.

Text-book: Bowser's.

Sophomore Year—Second Term, 2 theoretical periods per week; Third Term, 5 theoretical periods per week.

Junior Year—First Term, 5 theoretical periods per week.

MECHANICAL ENGINEERING.

PROFESSOR GWINNER.
ASSSOCIATE PROFESSOR CRISP.
MR. WARTHEN.

This Department offers a Course in Mechanical Engineering leading to the degree of Bachelor of Science in Mechanical Engineering. The list of all subjects required to be completed to obtain this degree is given on page 110. It prepares young men to design and construct machinery, to superintend engineering establishments, to become superintendents of construction and to teach mechanical engineering and manual training. For degree of Mechanical Engineer see page 128.

The record of its graduates shows that the course is equipping such for immediate usefulness in the technical field.

Instruction is given by means of lectures and recitations, accompanied by a large amount of practice in the drafting rooms, shops and experimental laboratory.

The program of the Department is arranged to embody the twofold belief that a thorough training is best secured by a study of the practical application of the principles involved, as well as of the principles.

EQUIPMENT. The Mechanical Engineering Laboratories are situated in the engineering building, which contains the wood-working and machine shop, drafting and lecture rooms, foundry and blacksmith shops as well as the College power plant.

The wood-working shop contains accommodations for bench work and wood turning. The power machinery in this shop is a band and universal circular saw, five 12-inch turning lathes, one 16-inch by 10-foot pattern maker's lathe, a grindstone, wood trimmer, 26-inch wood planer and universal tool grinder.

In the forge shops are sixteen power forges, two hand forges and a pressure fan and exhauster for keeping the shop free of smoke. There is a full assortment of smith's tools for each forge.

The foundry is equipped with an iron cupola, which melts 1,200 pounds of iron per hour, a brass furnace, one core-oven and the necessary flasks and tools.

The machine shop equipment consists of one 10-inch speed lathe, one 22-inch engine-lathe with compound rest, one 12-inch combined foot and power lathe, two 14-inch engine-lathes, one 24-inch drill press, one No. 4 emery tool grinder, one No. 1½ universal milling machine, and an assortment of vises, taps, dies, pipe-tools and measuring instruments.

The machinery of the pattern and machine shops is driven by a 9 by 14-inch automatic cut off, high speed engine, built by members of the Junior and Senior Mechanical Engineering Classes, after the standard design of the Atlas engine. An 8 by 12-inch engine drives the machinery of the blacksmith shop and foundry. It was presented to the College by the City of Baltimore, and secured through the efforts of Rear-Admiral John D. Ford, United States Navy, retired.

The experimental laboratory contains: A hundred thousand pound Riehle combined hand and power testing machine for making tensile, compression, shearing and transverse tests on various kinds of materials, turbo generator set, consisting of a Curtis steam turbine and thirty-five K. W. General Electric compound wound generator for making steam and electric efficiency tests. This set is connected with the general lighting system of the College so that any time it may be tested to its capacity. It may also be used for lighting purposes if necessary. A cross compound condensing Corliss engine of fifty horse-power, equipped with brake, indicators, relief valves, reducing motion, steam and vacuum gauges, and speed indicator, gives ample opportunity for steam consumption and brake tests. This is connected with the shops, so that any time it may be switched on and drive them. The College power plant with its vacuum heating system, three one-hundred horse-power return tubular boilers, and two electric generating units offer unexcelled opportunities for experimental work.

The three drafting rooms are well equipped for practical work. Two of these are used by the Junior and Senior Classes, each student being provided with a separate desk. The third room is used jointly by the Freshman and Sophomore students and contains eleven drawing tables, accommodating about sixty students.

The combined blue print and dark room with its commodious

printing frames affords splendid opportunities for sun printing, which is so useful to engineering students.

Tours of Inspection. The proximity of the College to Baltimore, Washington and Philadelphia, with their great industrial enterprises, offers unexcelled opportunities to engineering students to acquaint themselves practically with what is being done in modern engineering construction.

During the past session, the Senior Mechanical Engineering Class has visited the Disston Saw Works, Philadelphia; Baldwin Locomotive Works, Philadelphia; University of Pennsylvania, Philadelphia; Midvale Steel Plant, Nicetown, Pa.; and the New York Ship Building Co., Camden, N. J.; anl the Junior Mechanical Engineering Class has visited the United States Navy Yard, Washington; Potomac Electric Light Company, Washington; and the Terminal Power Station, Washington. Upon these trips, an instructor accompanies the class and explains the different processes, plants and machines.

COURSES OFFERED.

380. Freehand Drawing. Straight and curved lines, leaves, plants and ornaments. Lettering, drawing from geometrical solids and antique fragments in outline, and light and shade.

Preparatory Year—First and Second Term, 4 practical periods per week.

381. Shopwork. Exercise in sloyd, chip carving and bent iron work.

Preparatory Year—Third Term, 4 practical periods per week.

382. Shopwork. Sheet metal working in brass and iron.

Sub-Freshman Year—First Term, 4 practical periods per week.

383. Freehand Drawing. Technical sketching. Pen and ink shading.

Freshman Year—First Term, 4 practical periods per week.

384. Mechanical Drawing. Practice in plain lettering, use of instruments, projection and simple working drawings, the plates

upon completion being enclosed in covers properly titled by the students.

Text-book: Rouillion's "Mechanical Drawing."

Freshman Year—First Term, 2 practical periods per week; Second Term, 4 practical periods per week; Third Term, 8 practical periods per week.

First Year—Second Term, 4 practical periods per week.

385. Technical Instruction. Explanation of the reading of mechanical drawings; the proper cutting angles, care and adjustment of carpenter tools; relative strength of wood joints; wood, its shrinking and warping, and how to correct and prevent. Drill in problems in arithmetic, algebra and drawing by notes and lectures.

Text-book: Goss' "Bench Work in Wood."

Freshman Year—First Term, 2 theoretical periods per week.

386. Wood Work. During the First Term is taught the use and care of bench tools, exercise in sawing, mortising, tenoning and laying out work from blue prints. The Second Term is devoted to projects involving construction, decoration and wood turning. During the Third Term the principles and process of pattern making are taught, together with enough foundry work to demonstrate the uses of pattern making.

Freshman Year—First Term, 6 practical periods per week; Second Term, 4 practical periods per week; Third Term, 8 practical periods per week.

First Year—Second Term, 4 practical periods per week.

387. Descriptive Geometry. Detailing of machinery and drawing to scale from blue prints. Tracing and blue printing, and representation of flat and round surfaces by ink shading. Its relation to mechanical drawing and the solution of such problems relating to magnitudes in spaces as bear directly upon those which present themselves to civil, electrical and mechanical engineers.

Text-books: Faunce's "Descriptive Geometry," Rouillion's "Mechanical Drawing."

Sophomore Year—First Term, 1 theoretical and 4 practical periods per week; Second Term, 2 theoretical and 6 practical periods

per week; Third Term, 2 theoretical and 2 practical periods per week.

388. Blacksmithing. The making of the fire and how to keep it in order. The operations of drawing-out, upsetting and bending of iron and steel, including the calculations of stock for bent shapes. Welding. Construction of steel tools for use in the machine shop, including tool dressing and tempering. Annealing.

Sophomore Year—First and Second Term, 4 practical periods per week.

389. Foundry Work. Moulding in iron and brass. Core making. The cupola and its management. Lectures on the selection of irons by fracture, fuels, melting and mixing of metals.

Sophomore Year—Third Term, 8 practical periods per week.

390. Elementary Machine Design. Freehand sketching of the details of machinery and making working drawings of same. Calculations and drawings of a simple type punching press. Notes and lectures.

Junior Year—First and Second Term, 2 theoretical and 4 practical periods per week; Third Term, 2 theoretical and 8 practical periods per week.

391. Machine Work. Elementary principles of vise and machine work, which includes turning, planing, drilling, screw cutting and filing. This is preceded by study of the different machines used in the machine shops.

Junior Year—First and Second Term, 6 practical periods per week; Third Term, 8 practical periods per week.

392. Steam Engines, Boilers and Dynamos. The principles of steam and the steam engine. The slide valve and valve diagrams. The indicator and its diagram. Steam boilers, the various types and their advantages. Each student taking this course is required to spend certain hours in the power plant actually operating the engines, boilers and dynamos. The theory of dynamos is given in course 121.

Text-book: Jamieson's "Steam and Steam Engines."
Junior Year—First Term, 3 theoretical periods per week.

393. Graphic Statics. The theory and practice of the method of determining stresses in cranes, roof trusses and bridges, and stress on beams and girders due to traveling loads.
Text-book: Merriman and Jacoby's "Graphic Statics."
Junior Year—Second Term, 4 theoretical periods per week.

394. Structural Design. Analysis of stresses in structural steel buildings, traveling cranes and derricks. Design of crane girders, lattice girders and roof trusses. In addition mechanical engineering students have design of cranes and civil engineering students have design of truss bridges and retaining walls. Both analytical and graphical methods are used, that being used which is best suited to problem.
Text-books: "Cambria Steel," Ketchum's "Steel Mill Buildings," Merriman's "Bridge Design," Thompson's "Bridge and Structural Design."
Senior Year—First and Second Term, 2 theoretical and 4 practical periods per week; Third Term, 2 theoretical and 6 practical periods per week.

395. Mechanics of Engineering. The mechanics of solids. Statics of a material point and of rigid bodies. Chains and cords. Centrifugal and centripetal forces. Work. Power. Energy. Friction. Original problems. Theoretical hydraulics.
Text-book: Church's "Mechanics of Engineering."
Senior Year—First Term, 3 theoretical periods per week; Second and Third Term, 4 theoretical periods per week.

396. Thermodynamics. Theory of heat, gases and vapors. Heat engines. Air and refrigeration machinery. Principles of steam boilers, chimneys, steam piping and distribution of the same. The steam turbine.
Text-book: Peabody's "Thermodynamics."
Senior Year—First Term, 2 theoretical periods per week; Second and Third Term, 3 theoretical periods per week.

397. Heating and Ventilation. Principles and comparison of the different systems in common use. Elementary design of some one system. Notes and lectures.

Senior Year—First Term, 2 theoretical and 2 practical periods per week.

398. Hydromechanics. Pumps and pumping machinery. Water supply engineering. Practical consideration of friction of water in pipes. Cost data of machinery. Notes and lectures.

Senior Year—Second Term, 3 theoretical periods per week.

399. Experimental Engineering. Determining the amount of moisture in steam; the efficiency of the injector; the transit and its uses; indicator practice and the use of the planimeter; slide valve setting; the slide rule and micrometer; the analysis of boiler feed water; flue gases; lubricating oils; and the determination of the heating value of coals. The efficiency test of a Curtis steam turbine combined with that of an electric generator. The brake test and steam consumption of a cross compound Condensing Corliss engine under varying loading. The testing of iron, steel and wood to determine their commercial values. The testing of cement to determine its tensile and compressive strength. All such tests must be written upon standard forms provided for each student.

Senior Year—First and Second Term, 8 practical periods per week; Third Term, 4 practical periods per week.

400. Thesis. The time devoted to the problem selected as the subject for a thesis depends upon the difficulties involved in its solution. The time here stated is a minimum.

Senior Year—Second Term, 4 practical periods per week; Third Term, 2 theoretical and 8 practical periods per week.

MILITARY SCIENCE.

MAJOR DAPRAY.

The Congress of the United States, subject to certain conditions, now appropriates annually a generous sum for each Agricultural College of the United States.

One of the conditions imposed by this grant is that the students shall receive a course of training in Military Tactics.

The instructor for this course is supplied by the War Department and is an officer of the Regular Army, detailed from his Regiment or Corps for this duty.

The value of such military training may be considered from two viewpoints: First, that of the United States Government; and, second, that of the individual student.

To consider the first: The Government, depending as it does upon the citizen soldier for its Volunteer Army in times of national peril, realizes that an army, recruited from raw material as regards both officers and men, would be a most hopeless proposition in these days of quick action. If the officers were trained men they would be of inestimable value in shaping these collections of citizens into efficient armies.

Government aided schools are therefore required to give such a course in Military Tactics as will create in this country a body of men, whose knowledge of the Military Art is sufficient to enable them to officer companies of infantry when called upon by the Government in the defense of the country.

From the viewpoint of the student, the military training makes for character—"it systematically develops the body and it educates the mind along a consistent line for the double purpose of clear thinking and effective practical work."

"It exercises the character, it disciplines the mind, it inculcates habits of subordination to lawful authority, of strict personal accountability for word and act, of truth telling, of integrity and fidelity to trust, of simplicity of life and of courage."

In addition, a cadet has during his term as such, most excellent opportunities to perfect himself in the great art of commanding others.

This problem is for every cadet to solve some time during his cadet career. He finds that he must know his men, and that he must know how to appeal to those under him, if he wishes to get results without antagonizing them.

How often capable men fail, simply because they have not the knack of exercising authority so as to obtain the most satisfactory results.

Often do graduates, even those to whom the military training was distasteful, express their appreciation of the value that this training which they received at College, is to them in their several walks of life.

INSPECTION.

The War Department designates an officer of the Regular Army to make an annual inspection of the Military Department of each of the institutions of learning in the United States at which an officer is regularly detailed. There are about one hundred such institutions. This inspector rates these schools according to their military efficiency. The ten highest are designated as "Distinguished Institutions," and each of such institutions has the privilege of naming one of its graduating class for a second lieutenant's commission in the Regular Army of the United States.

The graduate so fortunate as to be selected for this honor is required to pass only a physical examination before being commissioned.

At two annual inspections the Maryland Agricultural College was designated a "Distinguished Institution" and therefore had the privilege of naming a graduate both of the Class of 1910 and 1911, who received commissions as second lieutenants of infantry on September 24, 1910, and September 29, 1911, respectively.

Only one other Agricultural College in the United States enjoys this distinction, and these two are the first, and thus far the only Agricultural Colleges which have ever attained to this distinguished class.

ORGANIZATION.

The Corps of Cadets is organized as a battalion of three companies, staff and band, the drill and administration of which conform as far as possible to that of the Regular Army.

All students, other than those physically disabled, and those at least twenty-one years of age who are not living in the dormitories, are required to drill, and upon entering are enrolled in one of the companies of the battalion.

INSTRUCTION.

The instruction in the Military Department is both practical and theoretical. The practical instruction includes the School of the Soldier, Squad, Company and Battalion in Close and Extended Order, Ceremonies of Guard-Mounting, Review and Inspection, Dress Parade, Escort to the Color, Advance and Rear Guard work, Patrolling and Scouting, Marches, Target Practice, Visual Signalling, Military Engineering and Topography.

The theoretical instruction is given to all members of the Senior Class and consists of instruction in Infantry Drill Regulations, Manual of Guard Duty, Firing Regulations for Small Arms, Field Service Regulations, First Aid to the Injured, etc., supplemented by lectures on tactical subjects, Army Regulations, Company Books and Papers, Messing, Cooking, Tactics, Camp Sanitation and Military Law.

EQUIPMENT.

The battalion of cadets is equipped with the United States magazine rifle, caliber 30, known as the Krag-Jorgensen, with complete equipment of side arms, cartridge box, etc. The cadet officers and non-commissioned staff officers are equipped with the regulation West Point cadet sword and sash.

The Government also has supplied the battalion with the new regulation sub-calibre target rifle for gallery practice, and has been very liberal in the allowance of ammunition for gallery practice, of blank cartridges for field exercises, and of ball cartridges for outdoor range practice.

Students are held strictly accountable for all arms and equipment issued to them.

PROMOTIONS.

The officers and non-commissioned officers of the corps are selected with reference primarily to their fitness for the duties they will be required to perform. Their general deportment and profi-

ciency in academic work are also given weight in making such selection.

Commissioned officers are selected from the Senior Class, sergeants from the Junior Class, and corporals from the Sophomore Class.

Cadet officers are required to serve from the beginning of the scholastic year up to March 1, of that year. On this date readjustment of rank is made, based upon the following: Military Efficiency, as evidenced by the fall drills and winter recitations in the Tactical Department; Military Discipline and Soldierly Bearing; General Deportment.

Recommendation for promotion will be based upon the standing of a cadet at the end of the year, and the possibility of his being able to work off conditions during the summer will not be considered.

DISCIPLINE.

The discipline of the institution is under the charge of the Commandant of Cadets at all times.

All rules and orders relating to the organization and government of the Corps of Cadets, the appointments, promotions, and changes of officers and all other orders affecting the Military Department are made and promulgated by the Commandant of Cadets, after having been approved by the President.

Trivial breaches of regulations, absences from classes and formations are punished by awarding demerits, confinement to quarters, walking extra punishment tours, etc.

For aggravated offences the punishment may be arrests, withdrawal of privileges, suspension or expulsion, at the discretion of the Faculty and the President.

Demerits will be awarded for every unremoved report, the number depending upon the nature and degree of the offence.

Any cadet who shall receive less than 5 demerits for any one month is excused from serving ordinary confinements for the succeeding month, except in special cases.

Any cadet who shall accumulate more than an average of one demerit per day for any calendar month, shall be deprived of all

privileges to leave the College grounds for the following period of 30 days.

Any cadet who shall accumulate more than an average of one demerit per day for any term, shall be suspended for the following term.

Any cadet, who, having been once suspended, returns and again, in any one term, accumulates more than an average of one demerit per day, shall be dismissed.

Smoking by any cadet of the Sub-Freshman or Preparatory Classes is strictly prohibited.

Any cadet who shall drink any spirituous or intoxicating liquor, or cause the same to be brought within cadet limits, or have the same in his possession, is subject to immediate expulsion from the College.

Every applicant for admission, before he is allowed to matriculate, is required to give a special pledge to refrain from what is popularly known as "hazing." Parents should impress upon their sons that failure to live up to this pledge is a dishonor which unfits them to be students of this College. "Hazing" is punished by instant dismissal.

UNIFORM.

The uniform worn by all members of the battalion of cadets is the regulation West Point fatigue uniform, and is made of the best Charlottesville gray cloth. The uniform consists of the gray fatigue blouse, trousers and cap, with white cross belt and white waist belt for all military formations. By special contract with one of the largest Military Equipment houses in the United States, the uniform and equipment is furnished at a very low price. The cost of this uniform and equipment last year was:

Fatigue coat	$ 7.95
Fatigue trousers	5.45
Fatigue cap	1.60
White waist belt with plate	.50
White cross belt and equipment	.50
Total	$16.00

Measures for this uniform are taken as soon as the student arrives at College, and fit is guaranteed.

Deposits for this uniform must be made with the Treasurer when the measure is taken, as no uniform will be ordered until the money has been deposited for the same. No uniform is paid for until it is approved by the Commandant of Cadets.

In summer, the field service uniform is worn, consisting of olive drab shirt and trousers, canvas leggins, regulation campaign hat, black waist belt and black tie.

The price of the summer outfit is as follows:

2 olive drab, wool shirts at $1.50	$ 3.00
1 campaign hat	.95
1 pair canvas leggins	.85
1 black leather belt	.20
1 black four-in-hand tie	.20
2 pairs white duck trousers at $1.25	2.50
1 pair olive drab trousers	2.30
Total for summer uniform	$10.00

Deposits for the summer uniforms must be made immediately after the first of January.

Members of the battalion must wear the prescribed uniform at all times, except when on leave of absence, and at such times as other dress is permitted.

The gray military overcoat has been adopted by the College as the regulation overcoat. It is made of the same material as the uniform and is a very warm and durable garment which will last for years. The cost of this overcoat is $19.75. The purchase of the overcoat is optional, but it is advised that it be purchased, since no overcoat other than the gray may be worn with the gray uniform.

The full dress coat worn by a majority of the cadets of the battalion for all social functions, etc., is of the regulation West Point pattern. The dresscoat is optional. The cost is $10.00.

White gloves, collars, caps and other military accessories may be purchased at the stores near the College.

CADET BAND.

The cadet band is one of the most attractive features of the Military Department. It is the means of a great deal of pleasure to the cadets, as well as an absolute necessity in furthering the interest of the military exercises.

The band has twenty-four members and is under the direction of an experienced and competent bandmaster employed by the College.

Students having musical ability, or those who wish to learn to play some instrument, will be taken into the band and receive instruction free of charge.

Instruments and music are furnished by the College. Members of the band are excused from certain military duties, but in other respects are subject to the usual military regulations.

Band rehearsals are held each day at the regular drill period, and absence from rehearsal without excuse, is equivalent to to absence from any class.

The band furnishes music for all military ceremonies, such as Guard-Mounting, Dress Parade, Review and Inspection, and Butt's Drill; and for baseball and football games. It has filled a number of engagements in different parts of the State for Farmers' Institutes, picnics, etc. During the spring and summer months it gives a series of open air concerts for the entertainment of the students and visitors.

ROUTINE OF DUTY.

6.30 A. M.	Reveille
6.30 to 6.40 A. M.	Physical Drill
7.00 A. M.	Breakfast
7.35 A. M.	Inspection of Quarters
7.55 A. M.	Chapel
8.15 to 11.15 A. M.	Recitations
11.15 A. M. to 12.15 P. M.	Drill
12.20 P. M.	Dinner
1.00 to 4.00 P. M.	Recitations
5.40 P. M.	Recall from Athletics
6.00 P. M.	Supper
7.30 P. M.	Call to Quarters
7.30 to 10.15 P. M.	Study Hours
10.15 P. M.	Tattoo
11.00 P. M.	Taps

SPECIAL DAILY CALLS.

4.05 P. M. .....Sick Call
4.15 P. M. .....Guard Mounting
Saturday and Sunday calls are one hour later.

ORATORY.

PROFESSOR RICHARDSON.

The object of this Department is to give a thorough training in public speaking. The work is begun with easy lessons in elocution, and this is continued until the student has acquired a mastery of vocal expression, and a pleasing and forcible delivery. The student is then required to deliver both extempore and prepared speeches, covering a wide range of subjects, in this way not only securing practice in delivery, but also developing the power of logical thought.

COURSES OFFERED.

420. ELOCUTION. Such instruction and practice as will enable the students to read correctly and intelligently.
Preparatory Year—2 practical periods per week.

421. ELOCUTION. Review of work in the Preparatory Year and declamations of simple selections.
Sub-Freshman Year—2 practical periods per week.

422. ORATORY. Articulation, accent, modulation, inflection, force and elocutionary pause; expressive management of the body, attitude and motion. Selections of poetry and prose read and declaimed by the students. Simple lectures on orators and oratory. Methods of analysis and subjects for orations. Original orations by students, both extempore and prepared, on simple abstract subjects, and speeches before the class on the less complex public questions. Subjects for orations requiring research in different departments of knowledge. Lectures on parliamentary law.

Freshman Year—1 theoretical period per week.

423. ORATORY. A review of all the work of the Freshman Year. More advanced selections for declamations (Shakespeare, Macaulay, Webster, etc.). Lectures on ancient and modern orators, with readings and declamations from their orations. Extempore speeches by students on various subjects. Prepared original orations by students on subjects requiring careful and intelligent research, including such important public issues of the day as Tariff, Currency, Trades Unions, Trusts, Federal Control of Public Utilities, etc. Lectures on parliamentary law.

Sophomore Year—1 theoretical period per week.

424. ORATORY. Special attention is given to the writing and delivering of orations, debates, etc. Elective.

Junior Year—4 theoretical periods per week.

PHYSICAL CULTURE.

DIRECTOR RICHARDSON.
MR. BYRD.

The physical culture of the students is provided for by a regular course of instruction in the Gymnasium. The course is carefully planned, so as to develop gradually and scientifically the physical powers of each student. One of the most valuable features of this Department is a complete anthropometry outfit, by means of which measurements and strength tests of students are taken at the beginning and also at the end of each scholastic year. By means of these measurements and tests the exact physical condition of each individual student can be ascertained, and such special exercises given as will produce a symmetrical development of the body. While desiring to make the work in the Gymnasium of practical value to all the students, the required work only extends through the Preparatory and Sub-Freshman Years.

COURSES OFFERED.

*440. GYMNASIUM WORK. Scientific body building, with light gymnastics.

Preparatory Year—3 practical periods per week.

441. HYGIENE. The care of the person in its relation to physical well-being.

Sub-Freshman Year—Second Term, 2 practical periods per week.

*442, GYMNASIUM WORK. Scientific body building, with heavier gymnastic work.

Sub-Freshman Year—2 practical periods per week.

SUB-COLLEGIATE INSTRUCTION.

PROFESSOR HARRISON.
PROFESSOR RICHARDSON.

This Department was established in 1892, and reorganized in 1913; and is designed to meet the requirements of those students who have not had the advantage of a thorough grammar and high school training, with a view to equipping them to enter the regular collegiate department.

Only such students are desired as will be able to enter the Freshman Class within two years, and who are fifteen years of age. This course is recommended especially to students who have not been to school for several years; for their progress in the regular collegiate course, by virtue of such a drawback, would be seriously impeded. It is to be remarked that as a rule the students who have taken this course make excellent progress in their later college work. Students in this Department are subject to the same military regulations as other students.

For outline of courses see page 117.

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*This work, temporarily discontinued on account of unusual conditions, will be resumed as soon as conditions permit.

VETERINARY SCIENCE.

PROFESSOR BUCKLEY.

This Department offers instruction in the elements of veterinary science. The course embraces the study of the external form as well as the internal structure and functions of the domesticated animals. It is intended to supplement animal husbandry instruction, and does not have for its object the training of students for veterinary practice. The preservation of health in animals is more aimed at than their restoration from disease. When studiously pursued the courses offered are of great value to the breeder, feeder or manager of live stock.

COURSES OFFERED.

The accompanying brief descriptions indicate the scope of the different courses.

460. SANITATION. Public discussion has emphasized a necessity for better practices in the production and care of animal products used for human food. The study of sanitation, therefore, is of considerable importance to students who may elect courses of study bearing upon animal production and dairying. Inasmuch as sanitary laws are applicable to the individual and the home, as well as to animals and their stables, it is desirable that all students receive some instruction in this subject. It is given, therefore, early in the course before specialization of subjects is made.

Sub-Freshman Year—Second Term, 2 practical periods per week.

461. FARM BUILDINGS. This course has for its object the development of proper ideas in the construction and arrangement of buildings for the housing of stock; the storage of food materials, animal and dairy products; and incidentally the storage of harness and implements. Convenience, economy and proper sanitation are especially considered in the study of plans and location. The course is made as practical as possible by the study of plans, specifications and photographs of existing structures, and by drawing simple plans to express individual ideas.

Sophomore and First Year—Second Term, 2 theoretical and 4 practical periods per week.

462. Anatomy and Physiology. This course embraces a general consideration of the structure and functions of the animal body, with especial reference to animal production and dairying.

Junior Year—Second Term, 3 theoretical periods per week.

463. Bacteriology. The study of bacteria, including their microscopic examination, cultivation and sterilization, is made. The intimate relation which this subject bears to fertilization, dairying and plant and animal diseases makes it important in the list of agricultural subjects.

Junior Year—Second Term, 2 theoretical and 4 practical periods per week.

464. Bacteriology. This course completes course 343 begun in the Junior Year.

Senior Year—Second Term, 8 practical periods per week.

465. Bacteriology. A brief course in dairy bacteriology is offered the students attending the two-year Courses in Agriculture and Horticulture.

Second Year—Second Term, 2 practical periods per week.

466. Animal Diseases. A study is made of the diseases of the domesticated animals with emphasis upon sanitation, practical bacteriology, nursing, administration of medicine and use of common medicinal substances. The aim of this course is to enable the student to perceive the early appearance of diseases and intelligently care for them under proper veterinary supervision.

Senior Year—Second Term, 5 theoretical and 6 practical periods per week.

467. Animal Diseases. A briefer course in animal diseases is offered to the students in the two-year Agricultural and Horticultural Courses.

Second Year—Second Term, 2 theoretical and 4 practical periods per week.

THE COLLEGE LIBRARY.

DR. SILVESTER.

The College Library may be properly regarded as one of the departments of the institution, as its aid for purposes of reference and its influence upon the mental development of the students must always be felt throughout all courses. The present quarters of the Library, while adequate for its immediate needs, will necessarily be too limited in the course of time. The reading room is well arranged and lighted, and is in all respects comfortable and convenient.

While the Library is not large, the collection of works has been carefully chosen, and the shelves contain a fair supply of works of reference, history, biography, essays, poetry and the standard works of fiction. Several thousand volumes of bound United States Government Reports comprise an important addition to the reference works of the Library. Most of the leading magazines and a number of newspapers are subscribed for; technical periodicals and works of reference relating to specific branches are deposited in the libraries of the various departments.

The works in the Library are classified according to the modern Dewey Decimal System of classification. As rapidly as possible the sets of Government Reports that are most valuable are being completed and catalogued. At present there are on hand completed to date, or nearing completion, sets of the reports and bulletins of the United States Agricultural Department, the Geological Survey, the Fish Commission, the Smithsonian Institution, the National Museum, the Bureau of Ethnology, the Bureau of Education, the Labor Bureau, the Census Bureau and the Bureau of American Republics. There are also nearly completed sets of the Consular Reports, Special Consular Reports, the Engineers' Reports of the United States Army, the War of the Rebellion Records and Messages and Documents, besides many other miscellaneous publications of great value. Many valuable State publications are also on file.

It is the aim of the Librarian to render all these valuable works available for easy reference by the students.

Grateful acknowledgment is made to the officers of all the departments and bureaus above noted for their publications, and especially to the United States Superintendent of Documents, through whose aid many public documents have been received. Thanks are likewise due the following for valuable additions to the Library: Johns Hopkins University, the Geological Survey, the Weather Service, the Highway Commission, and the Bureau of Statistics and Information. Especial thanks are due the county press for their liberality in sending their publications free to the Library.

COURSES OF STUDY.

In order to systematize the work of the different departments of the College, and as far as possible arrange for specialization within limits consistent with the normal development of individual students, eight distinct courses of study have been prepared, one of which the student is expected to choose upon entering the regular College work.

These courses are Agriculture, (subdivided into Agronomy and Animal Husbandry), Horticulture, Biology, Chemistry, General, Civil Engineering, Electrical Engineering and Mechanical Engineering.

A continuous and progressive course of work, beginning in the Freshman Year, with a nearly uniform course for all students, and gradually separating in the three succeeding years until the class work is almost wholly specialized, has been found to be most satisfactory. A broad and liberal foundation in English, Mathematics and History is laid in the Freshman and Sophomore Years, and then the particular line of study desired is emphasized more and more until the end of the course.

In the tabular statement of the courses the periods per week are given, the numbers in parenthesis denoting practical or laboratory periods, the others theoretical or recitation periods.

AGRICULTURAL COURSES.

FOUR-YEAR COURSE IN AGRICULTURE.

The four-year Agricultural Course is designed to fit the student for conducting practical operations on the farm, or, should taste or circumstances so direct, to prosecute successfully advanced scientific research along the lines of agronomy or animal husbandry. With this end in view, the course has been made at once comprehensive and technical, comprehensive enough to include whatever is necessary for the complete development of the work, yet technical enough to make the student feel that he is a specialist and equipped for special work.

This Course is the result of development. While a man must specialize to attain any eminent success, yet in agricultural science it is not possible to specialize to the same degree as in some others, because it is itself made up of many sciences. Experience has clearly shown also that in agriculture the practical must keep even pace with the theoretical, and that true education trains the eye and hand as well as the intellect, and should give to the student the ability not only to acquire and originate ideas, but also to express them in words and deeds.

In the Junior Year the Course is divided into two sections, known as the Division of Agronomy and the Division of Animal Husbandry. This arrangement enables the student to specialize along whichever line accords with his interests or desires, while at the same time he is taught the fundamental facts of both. This enables him to see more clearly, and to harmonize his work to, the relations which must exist between these great branches of agriculture.

TWO-YEAR COURSE IN AGRICULTURE.

A large number of young men seeking to better themselves in their chosen profession of farming are calling for instruction in those courses pertaining to practical agriculture. Many of them have neither the time nor means at hand to take the full four-year Course, but while away in school they wish to gain the greatest possible amount of instruction and assistance which is particularly applicable to the farm. The farm can no longer be run in the old-time haphazard way. There is a demand for skill and the highest order of intelligence to make a success on the farm, as in any other line of human endeavor. Brains must be planted with each little seed, and also put into the feeding trough for the animal. To meet the demand for instruction along these lines, and for a better understanding of the underlying principles of successful agriculture, a short course of two years has been provided.

It embraces much of the technical work of the four-year Course, and is especially designed to lay a foundation that will secure success in practical farming, which, as it must be conducted today, is a union of many interests. To enter this Course a working knowl-

edge of arithmetic, including fractions, mensuration and percentage, and a common-school training in English, is required.

Agricultural Course.

Division of Agronomy.

Subject.	Term. I	II	III
Freshman Year.			
Mathematics 364	(2)	.....	.....
Trigonometry 366	.....	5	.....
Rhetoric 163	5	5	5
Oratory 422	1	1	1
History 183 or Latin 301	3	3	3
German 320	3	3	3
Farm Crops 2	.....	.....	1(4)
Geology 13	4(2)	.....	.....
Breeds and Scoring 21	1(2)	.....	.....
Elementary Pomology 241	.....	.....	1(2)
Vegetable Culture 260	.....	(2)	.....
Landscape Gardening 280	(2)	.....	.....
Botany 63	.....	.....	2(4)
Zoology 221	.....	3(4)	.....
Elementary Surveying 101	.....	.....	2(4)
Freehand Drawing 383	(4)	.....	.....
Mechanical Drawing 384	.....	(4)	.....
Woodwork 386	(4)	.....	.....
Junior Year.			
English Literature 167	3	3	.....
Logic 168	.....	.....	3
English Composition 170	1	1	1
Civics 200	3	3	.....
Business Law 202	.....	.....	3
German 322	3	3	3
Plant Production 5	3(4)	.....	.....
Farm Machinery 7	.....	.....	2(4)
Farm Management 8	2	.....	.....
Dairying 24	.....	.....	3
Anatomy & Physiology 462	.....	3	.....
Bacteriology 463	.....	2(4)	.....
Economic Plants 69	.....	2(4)	.....
Vegetable Pathology 73	.....	.....	2(4)
Qualitative Analysis 83	1(8)	.....	.....
Quantitative Analysis 87	.....	1(6)	1(4)
Organic Chemistry 88	3	.....	.....
Research 12	.....	.....	(2)

Subject.	Term. I	II	III
Sophomore Year.			
English Composition 165	1	1	1
American Literature 166	3	3	3
Oratory 423	1	1	1
German 321	3	3	3
Soils 3	2(4)	2(4)	.....
Farm Crops 2 / Farm Drainage 4	.....	.....	2(4)
Fertilizers 6	.....	.....	2(4)
Live Stock Management 23	2(4)	.....	.....
Farm Buildings 461	.....	2(4)	.....
Plant Histology 65	1(6)	.....	.....
Plant Physiology 66	.....	2(4)	.....
Entomology 223	.....	.....	2(4)
Chemistry 81	4(2)	3(4)	3(4)
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
Senior Year.			
Psychology 172	4	.....	.....
Pedagogics 173	.....	4	4
English Composition 174	1	1	1
Economics 201	4	4	4
Farm Management 8	.....	.....	2(4)
Crop Production 9 or Soils 10	3(4)	.....	3(4)
Farm Forestry 40	2(4)	.....	.....
Bacteriology 464	.....	(8)	.....
Animal Diseases 466	.....	5(6)	.....
Plant Breeding 255	.....	2	2(2)
Quantitative Analysis 87	(4)	.....	.....
Agricultural Chemistry 92	4	.....	.....
Research & Thesis 12	(2)	(4)	2(4)
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....

Upon completion of this Course a certificate is granted, taking the place of the diploma for the four-year Course. See outline of Course on page 118.

Experience having demonstrated the advantages to be derived from a change of plan, the old agricultural short winter course has been reorganized into a series of short courses, each lasting from

Agricultural Course.

Division of Animal Husbandry.

Subject.	Term. I	Term. II	Term. III
Freshman Year.			
Mathematics 364	(2)	.....	.....
Trigonometry 366	.....	5	.....
Rhetoric 163	5	5	5
Oratory 422	1	1	1
History 183 or Latin 301	3	3	3
German 320	3	3	3
Farm Crops 2	.....	.....	1(4)
Geology 13	4(2)	.....	.....
Breeds and Scoring 21	1(2)	.....	.....
Elementary Pomology 241	.....	.....	1(2)
Vegetable Culture 260	.....	(2)	.....
Landscape Gardening 280	(2)	.....	.....
Botany 63	.....	.....	2(4)
Zoology 221	.....	3(4)	.....
Elementary Surveying 101	.....	.....	2(4)
Freehand Drawing 383	(4)	.....	.....
Mechanical Drawing 384	.....	(4)	.....
Woodwork 386	(4)	.....	.....
Junior Year.			
English Literature 167	3	3	.....
Logic 168	.....	.....	3
English Composition 170	1	1	1
Civics 200	3	3	.....
Business Law 202	.....	.....	3
German 322	3	3	3
Farm Machinery 7	.....	.....	2(4)
Breeds and Scoring 21	1(6)	.....	.....
Principles of Breeding 22	3	.....	.....
Dairying 24	.....	.....	3(4)
Animal Nutrition 26	.....	4(2)	2(2)
Anatomy and Physiology 462	.....	3	.....
Bacteriology 463	.....	2(4)	.....
Zoology 226	.....	1(4)*	1(4)*
Qualitative Analysis 83	1(8)	.....	.....
Quantitative Analysis 87	.....	1(4)*	1(4)*
Organic Chemistry 88	3	.....	.....

Subject.	Term. I	Term. II	Term. III
Sophomore Year.			
English Composition 165	1	1	1
American Literature 166	3	3	3
Oratory 423	1	1	1
German 327	3	3	3
Soils 3	2(4)	2(4)	.....
Farm Crops 2 / Farm Drainage 4	.....	.....	2(4)
Fertilizers 6	.....	.....	2(4)
Live Stock Management 23	2(4)	.....	.....
Farm Buildings 461	.....	2(4)	.....
Plant Histology 65	1(6)	.....	.....
Plant Physiology 66	.....	2(4)	.....
Entomology 223	.....	.....	2(4)
Chemistry 81	4(2)	3(4)	3(4)
Senior Year.			
Psychology 172	4	.....	.....
Pedagogics 173	.....	4	4
English Composition 174	1	1	1
Economics 201	4	4	4
Dairying 24	1(6)*	.....	.....
Stock Judging 25	(4)	.....	(4)
Animal Nutrition 26	2(4)	.....	3(2)
Poultry 28	.....	2	.....
Farm Forestry 40	2(4)	.....	.....
Bacteriology 464	.....	(8)	.....
Animal Diseases 466	.....	5(6)	.....
Animal Parasites 233	.....	.....	2(4)
Quantitative Analysis 87	(4)	.....	.....
Agricultural Chemistry 92	4*	.....	.....
Research & Thesis 29	.....	(4)	4(4)

*Alternative.

one to three weeks and being occupied entirely with one subject. At the same time, the work has been amplified and enlarged by the addition of a short course in Poultry Husbandry and one in Domes-

tic Science. The advantages of this method appear to be several. If the student wishes to take all the courses he can do so without greater outlay of time or money than formerly, when several subjects were taken up concurrently.

If on the other hand, there be any one who feels the need of instruction in a part of the work only, or if for any reason he cannot arrange to spend ten weeks away from home, he may select from the subjects offered the one or ones which specially appeal to him and attend the College only during the time when those subjects are being taught.

The Domestic Science course is intended specially for women and runs concurrently with the Farm Crops course. With this exception, these short courses follow each other in regular order. While the specialist may take one or more, or even a part of one, as he sees fit, the entire work has been laid out in logical sequence and the man interested in general farming and unable to take a course of four or two years, will find great advantages in taking all of these short courses as they come.

The arrangement of the courses for 1914, beginning after the Christmas holidays, will be:

Soils and Fertilizers, one week.
{ Domestic Science, one week.
{ Farm Crops, one week.
Poultry Husbandry, one week.
Horticulture, two weeks.
Animal Husbandry, three weeks.
Farm Machinery and Farm Engines, one week.
Farm Carpentry and Blacksmithing, one week.

No charge is made to short course students for tuition or use of laboratories. Good board at moderate rates can be secured in the neighboring villages of Berwyn, College Park, Riverdale and Hyattsville, all within a short distance of the College and Experiment Station.

Electric cars make frequent connection.

Short course students are not required to drill or wear uniforms.

For more detailed information regarding these courses, write for special short course bulletin and folders.

HORTICULTURAL COURSES.

FOUR-YEAR COURSE IN HORTICULTURE.

Through the organization of the School of Horticulture an opportunity is presented for students in the four-year courses to specialize in either Pomology, Vegetable Culture or Landscape Gardening and Floriculture.

These courses are designed to fit the student for conducting practical operations in horticulture on the farm, or to continue scientific research work and teaching in his chosen field. Practical work is made a prominent feature of the course. In the Freshman and Sophomore Years the work is not materially different from that of the Agricultural and Biological Courses, as all students are required to take certain fundamental subjects. In the Junior and Senior Years the courses become specialized.

The College and Experiment Station Farm, orchards, greenhouses, etc., together with the close proximity of the Institution to the United States Department of Agriculture Greenhouses and Experiment Farms, offer unusual opportunities to the students in horticulture.

TWO-YEAR COURSE IN HORTICULTURE.

The two-year course in horticulture is intended for young men who wish to devote their efforts to fruit and vegetable growing, or to commercial nursery or flower business, and who cannot afford the time required for a regular college course.

The course is so arranged that the students will be given the fundamental work in horticulture and agriculture and they can also specialize in their second year to some extent along the line of horticulture in which they are particularly interested. Courses in English, Botany, Entomology and Chemistry are included in their work.

Upon the completion of the two years' work satisfactorily, the students are given a certificate.

Horticultural Course.

Subject.	Term. I	Term. II	Term. III
Freshman Year.			
Mathematics 364	(2)	.....	.....
Trigonometry 366	.....	5	.....
Rhetoric 163	5	5	5
Oratory 422	1	1	1
History 183 or Latin 301	3	3	3
German 320	3	3	3
Farm Crops 2	.....	.....	1(4)
Geology 13	4(2)	.....	.....
Breeds and Scoring 21	1(2)	.....	.....
Elementary Pomology 241	.....	.....	1(2)
Vegetable Culture 260	.....	(2)	.....
Landscape Gardening 280	(2)	.....	.....
Botany 63	.....	.....	2(4)
Zoology 221	.....	3(4)	.....
Elementary Surveying 101	.....	.....	2(4)
Freehand Drawing 383	(4)	.....	.....
Mechanical Drawing 384	.....	(4)	.....
Woodwork 386	(4)	.....	.....
Junior Year.			
English Literature 167	3	3	.....
Logic 168	.....	.....	3
English Composition 170	1	1	1
Civics 200	3	3	.....
Business Law 202	.....	.....	3
German 322	3	3	3
Farm Machinery 7	.....	.....	2(4)
Bacteriology 463	.....	2(4)	.....
Commercial Pomology 243	2(2)‖	.....	.....
Small Fruits 244	.....	1(4)‖	.....
Small Fruits 245	.....	.....	2(4)‖
Practical Pomology 246	.....	2(4)‖	2(2)‖
Vegetable Culture 262	2(2)‡	.....	.....
Vegetable Culture 263	.....	2‡	2‡
Vegetable Culture 264	.....	1(8)‡	1(4)‡
Vegetable Culture 265	.....	.....	2‡
Landscape Gardening 282	2(2)§	.....	.....
Floriculture 283	.....	2(4)§	.....
Greenhouse Construction 284	.....	2(2)§	.....
Plant Materials 285	.....	.....	2(4)§
Tree Surgery 286	.....	.....	1(4)§
Plant Morphology 68	2(4)	.....	.....
Economic Plants 69	.....	2(4)	.....
Vegetable Pathology 73	.....	.....	2(4)
Economic Entomology 224	2(4)	.....	.....
Qualitative Analysis 83	1(6)	.....	.....
.....	.....	.....	.....

Subject.	Term. I	Term. II	Term. III
Sophomore Year.			
English Composition 165	1	1	1
American Literature 166	3	3	3
Oratory 423	1	1	1
German 321	3	3	3
Soils 3	2(4)	2(4)	.....
Farm Crops 2 / Farm Drainage 4	.....	.....	2(4)
Pomology 242	.....	2(4)	.....
Vegetable Culture 261	.....	.....	2(4)
Landscape Gardening 281	2(4)	.....	.....
Plant Histology 65	1(6)	.....	.....
Plant Physiology 66	.....	2(4)	.....
Entomology 223	.....	.....	2(4)
Chemistry 81	4(2)	3(4)	3(4)
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
Senior Year.			
Psychology 172	4	.....	.....
Pedagogics 173	.....	4	4
English Composition 174	1	1	1
Economics 201	4	4	4
German 322	.....	4	.....
Farm Forestry 40	2(4)	.....	.....
Systematic Pomology 247	2(4)‖	2(2)‖	.....
Small & Vine Fruits 248	2(2)‖	.....	.....
Horticulture 249	.....	1(2)‖	.....
Small Fruits 250	.....	.....	2(4)‖
Pomology 251	.....	.....	2(2)‖
Nut Culture 252	.....	.....	2(2)‖
Plant Breeding 255	.....	2‖	2(2)‖
Vegetable Culture 266	3(6)‡	.....	.....
Vegetable Culture 267	.....	4(4)‡	4(4)‡
Vegetable Culture 268	.....	.....	4(4)‡
Landscape Design 287	2(4)§	.....	.....
Civic Art 288	2(2)§	.....	.....
Planting Plans 289	.....	2(6)§	.....
Floral Decoration 290	.....	(2)§	.....
Exotics 291	.....	.....	2§
Landscape Gardening 292	.....	.....	2§
Landscape Practice 293	.....	.....	2(8)§
Applied Entomology 232	.....	2(4)	.....
Agricultural Chemistry 92	4	.....	.....
Thesis 256	(2)‖	(2)‖	(6)‖
Thesis 269	(4)‡	(4)‡	(8)‡
Thesis 294	(2)§	(4)§	2(8)§

‖For Students specializing in Pomology.

‡For Students specializing in Vegetable Culture.

§For Students specializing in Landscape Gardening and Floriculture.

TWO WEEKS' COURSE IN HORTICULTURE.

A two weeks' short course in horticulture is offered each winter to those who are unable to spend a longer time at the College. The course is designed for practical men who can leave home for short periods during the winter. It consists of lectures on all phases of horticulture and practical demonstrations in spraying, packing, pruning, etc.

BIOLOGICAL COURSE.

The Biological Course, while offering a general education and special training in the natural sciences, is outlined in particular for those who wish to specialize in some branch of botany or zoology. It aims to fit men for practical work in the field of plant pathology and entomology, but will also give training for special work in the pure sciences.

There are many opportunities for scientific workers in connection with the agricultural investigations of the Federal Government and of the state experiment stations, as well as in the state inspection work, for which this Course gives training. In fact, it is now difficult to secure men trained for such work. Full opportunity is given for the student to develop his natural resources and to learn to do work on his own responsibility. A large part of his time is spent in both practical and theoretical biological studies without neglecting the cultural studies which are a necessary foundation for every specialist. Upon completion of the four years' work the degree of Bachelor of Science is conferred.

Biological Course.

Subject.	Term. I	II	III
Freshman Year.			
Mathematics 364	(2)	.....	.....
Trigonometry 366	.....	5	.....
Rhetoric 163	5	5	5
Oratory 422	1	1	1
History 183 or Latin 301	3	3	3
German 320	3	3	3
Farm Crops 2	.....	.....	1(4)
Geology 13	4(2)	.....	.....
Breeds and Scoring 21	1(2)	.....	.....
Elementary Pomology 241	.....	.....	1(2)
Vegetable Culture 260	.....	(2)	.....
Landscape Gardening 280	(2)	.....	.....
Botany 63	.....	.....	2(4)
Zoology 221	.....	3(4)	.....
Elementary Surveying 101	.....	.....	2(4)
Freehand Drawing 383	(4)	.....	.....
Mechanical Drawing 384	.....	(4)	.....
Woodwork 386	(4)	.....	.....
Junior Year.			
English Literature 167	3	3	.....
Logic 168	.....	.....	3
English Composition 170	1	1	1
Civics 200	3	3	.....
Business Law 202	.....	.....	3
German 322	3	3	3
Bacteriology 463	.....	2(4)	.....
Plant Physiology 67	(6)†	.....	.....
Plant Morphology 68	2(4)	.....	.....
Economic Plants 69	.....	2(4)	.....
Seed Analysis 70	.....	1(6)†	.....
Micro Botany 71	.....	.....	2(4)†
Vegetable Pathology 73	.....	.....	2(4)
Botany 74	.....	.....	1(6)†
EconomicEntomology 224	2(4)	.....	.....
Entomology 225	1(4)!	.....	.....
Zoology 226	.....	1(4)	1(4)
Systematic Entomology 227	.....	2(4)!	2(4)!
Entomology 228	.....	.....	1(6)!
Qualitative Analysis 83	1(6)	.....	.....

Subject.	Term. I	II	III
Sophomore Year.			
Physics 141	3(4)	3(2)	3(4)
English Composition 165	1	1	1
American Literature 166	3	3	3
Oratory 423	1	1	1
German 321	3	3	3
Plant Histology 65	1(6)	.....	.....
Plant Physiology 66	.....	2(4)	.....
Zoology 222	2(2)	2(4)	2(2)
Entomology 223	.....	.....	2(4)
Chemistry 81	4(2)	3(4)	3(4)
Senior Year.			
Psychology 172	4	.....	.....
Pedagogics 173	.....	4	4
English Composition 174	1	1	1
Economics 201	4	4	4
Botany 75	4(6)†	4(6)†	4(6)†
Entomology 234	4(6)!	4(6)!	4(6)†
Botany 75 or Entomology 234	3(6)	3(6)	3(6)
Research & Thesis 76, 235	1(4)	1(4)	1(4)

†For students specializing in Botany.
!For students specializing in Entomology.

CHEMICAL COURSE.

The Course in Chemistry is essentially the same as the other science courses until the last term of the Sophomore Year, though any of the four-year courses would prepare for this, as the amount of chemistry is the same in all courses to the end of the Second Term of the Sophomore Year, and the demands on the agricultural

or technical chemist are now so varied that a foundation with more of the essentials of the agricultural or the engineering courses is often desirable.

Chemical Course.

Subject.	Term. I	Term. II	Term. III
Freshman Year.			
Mathematics 364	(2)	.....	.....
Solid Geometry 365	4	.....	.....
Trigonometry 366	.....	5	.....
Rhetoric 163	5	5	5
English 164	(2)	(2)	.....
Oratory 422	1	1	1
History 183 or Latin 301	3	3	3
German 320	3	3	3
Farm Crops 2	.....	.....	1(4)
Geology 13	4(2)	.....	.....
Botany 63	.....	.....	2(4)
Zoology 221	.....	3(4)	.....
Elementary Surveying 101	.....	.....	2(4)
Freehand Drawing 383	(4)	.....	.....
Mechanical Drawing 384	.....	(4)	.....
Woodwork 386	.....	.....	(4)
Junior Year.			
English Literature 167	3	3	.....
Logic 168	.....	.....	3
English Composition 170	1	1	1
Civics 200	3	3	.....
Business Law 202	.....	.....	3
German 322	3	3	3
Bacteriology 463	.....	2(4)	.....
Micro Botany 71	.....	.....	2(4)
Qualitative Analysis 82	1(8)	.....	.....
Inorganic Preparations 84	(4)	.....	.....
Theoretical Chemistry 85	2	1	1
Quantitative Analysis 86	.....	1(12)	.....
Organic Chemistry 88	3	3	3
Mineralogy 89	1(4)	.....	.....
Volumetric Analysis 91	.....	.....	2(10)

Subject.	Term. I	Term. II	Term. III
Sophomore Year.			
Physics 141	3(4)	3(2)	3(4)
English Composition 165	1	1	1
American Literature 166	3	3	3
Oratory 423	1	1	1
German 321	3	3	3
Plant Histology 65	1(6)	.....	.....
Plant Physiology 66	.....	2(4)	.....
Zoology 222	2(2)	2(4)	2(2)
Chemistry 81	4(2)	3(4)	3(4)
Qualitative Analysis 82	.....	.....	2(4)
Senior Year.			
Psychology 172	4	.....	.....
Pedagogics 173	.....	4	4
English Composition 174	1	1	1
Economics 201	4	4	4
Organic Preparations 90	.....	(16)	.....
Agricultural Chemistry 92	4	.....	.....
Agricultural Analysis 93	(24)	.....	.....
Chemistry 94	.....	6(4)	5(2)
Research & Thesis 95	.....	.....	(20)

Beginning with the Junior Year the major part of the student's time is devoted to chemistry, the practical work in the laboratory occupying approximately half of his time. The Course is essentially a course in agricultural chemistry, fitting the graduate for positions in agricultural colleges, experiment stations and the United States Department of Agriculture.

GENERAL COURSE.

The General Course is offered to those young men who have not chosen as their vocation in life any of the technical professions, but who are seeking for such general culture as will fit them to become

General Course.

Subject.	Term. I	Term. II	Term. III
Freshman Year.			
Mathematics 364	(2)	.....	.....
Solid Geometry 365	4	.....	.....
Trigonometry 366	.....	5	.....
Algebra 367	.....	.....	3
Rhetoric 163	5	5	5
English 164	(2)	(2)	.....
Oratory 422	1	1	1
History 183 or Latin 301	3	3	3
German 320	3	3	3
Geology 13	4(2)	.....	.....
Botany 63	.....	.....	2(4)
Zoology 221	.....	3(4)	.....
Elementary Surveying 101	.....	.....	2(4)
Freehand Drawing 383	(4)	.....	.....
Mechanical Drawing 384	.....	(4)	.....
Woodwork 386	.....	.....	(4)
Junior Year.			
English Literature 167	3	3	.....
Logic 168	.....	.....	3
English 169	4*	4*	4*
English Composition 170	1	1	1
History 184	4*	4*	4*
Oratory 424	4*	4*	4*
Civics 200	3	3	.....
Business Law 202	.....	.....	3
German 322	3	3	3
French 340, 341	4	4	3
Bacteriology 463	.....	2(4)**	.....
Small Fruits 244	.....	1(4)***	.....
Small Fruits 245	.....	.....	2(4)***
Landscape Gardening 282	2(2)**	.....	.....
Floriculture 283	.....	2(4)**	.....
Plant Materials 285	.....	.....	2(4)**
Plant Morphology 68	2(4)*	.....	.....
Micro Botany 71	.....	.....	2(4)**
Economic Entomology 224	2(4)*	.....	.....
Zoology 226	.....	1(4)**	.....
Qualitative Analysis 83	1(6)	.....	.....
Inorganic Preparat'ns 84. Theoretical Chemistry 85	(4) 2 *	.....	.....
Quantitative Analysis 87	.....	1(6)**	1(6)***
Organic Chemistry 88	3**	3**	.....
Mineralogy 89	1(4)**	.....	.....
Volumetric Analysis 91	.....	.....	2(4)***

Subject.	Term. I	Term. II	Term. III
Sophomore Year.			
Physics 141	3(4)	3(2)	3(4)
English Composition 165	1	1	1
American Literature 166	3	3	3
Oratory 423	1	1	1
Latin 302	4	4	4
German 321	3	3	3
Zoology 222	2(2)	2(4)	2(2)
Chemistry 81	4(2)	3(4)	3(4)
Senior Year.			
English Classics 171	4	4	4
Psychology 172	4	.....	.....
Pedagogics 173	.....	4	4
English Composition 174	1	1	1
Economics 201	4	4	4
Economics 203	4*	4*	4*
Civics 204	4*	4*	4*
Latin 303	4*	4*	4*
German 322	4*	4*	4*
French 342	4*	4*	4*
Landscape Design 287	2(4)*	.....	.....
Planting Plans 289	.....	2(4)*	.....
Landscape Practice 293	.....	.....	2(4)*
Agricultural Chemistry 92	4*	.....	.....
Agricultural Analysis 93	(8)*	.....	.....
Chemistry 94	.....	6(4)*	5(6)*

*,**,***Alternatives. Senior students must elect from the alternative courses a sufficient number to cover 12 periods of work.

after graduation, useful members of society. Young men desiring to study law, or medicine, or the liberal arts, or to become teachers, will find in the curriculum of this Course a highly satisfactory preparation for such work. While emphasis has been placed upon the cultural subjects, such as English, language, literature, history, mathematics, etc., the natural sciences occupy a prominent place in the Course and the range of electives beginning in the Junior Year will enable each to choose for himself, under certain necessary regulations, such a group of studies as will be best adapted to his own peculiar requirements.

CIVIL ENGINEERING COURSE.

This Course offers a young man an opportunity to obtain training in civil engineering which will enable him to engage in practical engineering work in the field or in the drafting room with the assurance that he has the necessary preparation to profit by the experience thus afforded; or which will entitle him to advanced standing, if he desires to pursue a more extended course at a technical school of a higher grade. The curriculum, as outlined, includes not only studies having culture value, but the sciences which form the basis of engineering. Students who have found themselves deficient in ability to learn mathematics are not advised to enter an engineering course. Upon the satisfactory completion of this Course the degree of Bachelor of Science in Civil Engineering, is conferred.

A thesis dealing with some problem in engineering will be required of all applicants for the degree of Bachelor of Science in Civil Engineering.

All engineering students in the Junior and Senior Classes are required to spend a portion of their time in the reading of the current engineering magazines.

Civil Engineering Course.

Subject,	Term. I	II	III
Freshman Year.			
Mathematics 364	(2)	.....	.....
Solid Geometry 365	4	.....	.....
Trigonometry 366	.....	5	2
Algebra 367	.....	.....	3
Rhetoric 163	5	5	5
Oratory 422	1	1	1
History 183 or Latin 301	3	3	3
German 320	3	3	3
Geology 13	4(2)	.....	.....
Elementary Mechanics 100	.....	4	.....
Elementary Surveying 101	.....	.....	2(4)
Freehand Drawing 383	(4)	.....	.....
Mechanical Drawing 384	(2)	(4)	(8)
Woodwork 386	.....	(4)	.....
Junior Year.			
Calculus 369	5	.....	.....
English Literature 167	3	3	.....
Logic 168	.....	.....	3
English Composition 170	1	1	1
Civics 200	3	3	.....
Business Law 202	.....	.....	3
Surveying 102	4(4)	.....	.....
Drawing 103	(8)	(8)	(4)
Railway Engineering 104	.....	3	3
Structural Design 105	.....	2(4)	2(4)
Mechanics of Materials 106	.....	3	5
Practical Problems 111	.....	.....	(8)
Steam Engines 392	3	.....	.....
Graphic Statics 393	.....	4	.....

Subject.	Term. I	II	III
Sophomore Year.			
Analytics 368	5	3	.....
Calculus 369	.....	2	5
Physics 141	3(4)	3(2)	3(4)
English Composition 165	1	1	1
Oratory 423	1	.....	.....
German 321	3	3	3
Chemistry 81	4(2)	3(4)	3(4)
Surveying 102	(4)	3	1(4)
Descriptive Geometry 387	1(4)	2(4)	2(2)
Senior Year.			
Pedagogics 173	.....	4*	4*
English Composition 174	1	1	1
Economics 201	4	4	4
German 322	.....	4*	4*
Surveying 101	.....	.....	(4)
Hydraulics 107	3	5	.....
Highway Engineering 108	4	.....	.....
Estimates of Cost 109	.....	.....	1(2)
Concrete 110	.....	.....	2
Practical Problems 111	(12)	(4)	(4)
Computing 112	.....	(6)	.....
Structural Design 394	2(4)	2(4)*	2(4)*
Mechanics of Eng. 395	3	4	4
Thesis 113	.....	(4)	(8)

*Alternative.

ELECTRICAL ENGINEERING COURSE.

This Course was introduced because of the great demand for young men who are not only well trained in the practical construction and operation of electrical machines, but who have a thorough knowledge of the principles and laws controlling the phenomena and forces with which they have to deal.

The general plan of the Course is to make the student thoroughly acquainted with the scientific laws which are the basis of the profession, and at the same time to train him to adapt the laws to practice, to use his own judgment, and to apply honest and accurate methods in all his work.

The curriculum, as outlined, includes those studies which provide a broad general culture, as well as a good foundation for the engineering work which follows. From the beginning of the Second

Electrical Engineering Course.

Subject.	Term. I	II	III
Freshman Year.			
Mathematics 364	(2)	.....	.....
Solid Geometry 365	4	.....	.....
Trigonometry 366	.....	5	2
Algebra 367	.....	.....	3
Rhetoric 163	5	5	5
Oratory 422	1	1	1
History 183 or Latin 301	3	3	3
German 320	3	3	3
Elementary Mechanics 100	.....	4	.....
Elementary Surveying 101	.....	.....	2(4)
Freehand Drawing 383	(4)	.....	.....
Mechanical Drawing 384	(2)	(4)	(8)
Technical Instruction 385	2	.....	.....
Woodwork 386	(6)	(4)	.....
Junior Year.			
Calculus 369	5	.....	.....
English Literature 167	3	3	.....
Logic 168	.....	.....	3
English Composition 170	1	1	1
Civics 200	3	3	.....
Business Law 202	.....	.....	3
Mechanics of Materials 106	.....	3	5
Dynamos 121	3	4	3
Batteries 126	.....	.....	2
Electrical Laboratory 127	(4)	(4)	(6)
Electrical Design 129	.....	.....	(6)
Machine Design 390	(4)	(4)	.....
Machine Work 391	(6)	(6)	(4)
Steam Engines 392	3	.....	.....
Graphic Statics 393	.....	4	.....

Subject.	Term. I	II	III
Sophomore Year.			
Analytics 368	5	3	.....
Calculus 369	.....	2	5
Physics 141	3(4)	3(2)	3(4)
English Composition 165	1	1	1
Oratory 423	1	.....	.....
German 321	3	3	3
Chemistry 81	4(2)	3(4)	3(4)
Electricity 120	.....	3	3
Descriptive Geometry 387	1(4)	2(4)	2(2)
Shopwork 388	(4)	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
Senior Year.			
English Composition 174	1	1	1
Economics 201	4	4	4
Hydraulics 107	3	5	.....
Alternators 122	5	3	5
Electric Lights 123	2	2	.....
Telephones & Telegraphs 124	.....	2	2
Electric Railways 125	.....	.....	3
Alt. Cur. Lab. 128	(8)	(8)	(6)
Alternator Design 130	.....	.....	(6)
Thermo dynamics 396	2	.....	.....
Thesis 131	(8)	(8)	(8)
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....

Term of the Sophomore Year the electrical training extends continuously throughout the Course.

MECHANICAL ENGINEERING COURSE.

The curriculum of the several years of this Course is outlined so as to give general culture as well as a proper foundation for the profession of Mechanical Engineer.

Young men not having a natural taste for mathematics and the handling of tools are advised not to pursue this Course. The prac-

Mechanical Engineering Course.

Subject.	Term. I	Term. II	Term. III
Freshman Year.			
Mathematics 364	(2)		
Solid Geometry 365	4		
Trigonometry 366		5	2
Algebra 367			3
Rhetoric 163	5	5	5
Oratory 422	1	1	1
History 183 or Latin 301	3	3	3
German 320	3	3	3
Elementary Mechanics 100		4	
Freehand Drawing 383	(4)		
Mechanical Drawing 384	(2)	(4)	(8)
Technical Instruction 385	2		
Woodwork 386	(6)	(4)	(8)
Junior Year.			
Calculus 369	5		
English Literature 167	3	3	
Logic 168			3
English Composition 170	1	1	1
Civics 200	3	3	
Business Law 202			3
Mechanics of Materials 106		3	5
Dynamos 121	3	4	3
Machine Design 390	2(4)	2(4)	2(8)
Machine Work 391	(6)	(6)	(8)
Steam Engines 392	3		
Graphic Statics 393		4	

Subject.	Term. I	Term. II	Term. III
Sophomore Year.			
Analytics 368	5	3	
Calculus 369		2	5
Physics 141	3(4)	3(2)	3(4)
English Composition 165	1	1	1
Oratory 423	1		
German 321	3	3	3
Chemistry 81	4(2)	3(4)	3(4)
Descriptive Geometry 387	1(4)	2(6)	2
Shopwork 388	(4)	(4)	
Foundry 389			(8)
Senior Year.			
Psychology 172	4*		
English Composition 174	1	1	1
Economics 201	4	4	4
German 322	4*		
Structural Design 394	2(4)	2(4)	2(6)
Mechanics of Eng. 395	3	4	4
Thermodynamics 396	2	3	3
Heat and Ventilation 397	2(2)		
Hydromechanics 398		3	
Exp. Engineering 399	(8)	(8)	(4)
Thesis 400		(4)	2(8)

*Alternative,

tical work of this Course is most thorough. The student is familiarized from the first with the reading of engineering drawings and with the use of tools and implements used in wood and iron work. He is given daily practice in the shops and is encouraged to develop whatever inventive talent he may have. Results have shown that students completing this Course have no difficulty in securing employment immediately upon graduation in the field of mechanics or mechanical engineering.

SYNOPSIS OF COURSES.

The figures represent the number of periods per week, those in parenthesis indicating practical or laboratory periods; the others, theoretical or recitation periods.

Four-Year Courses.

Term and Subject.	Agriculture		Horti-culture	Biology	Chemistry	General	Engineering		
	Agronomy	Animal Husbandry					Civil	Electrical	Mechanical
Freshman Year.									
I									
Mathematics 364....	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Solid Geometry 365.	.....	.....	.....	.....	4	4	4	4	4
Rhetoric 163.....	5	5	5	5	5	5	5	5	5
English 164.....	.....	.....	.....	.....	(2)	(2)	.....	.....	.....
Oratory 422.....	1	1	1	1	1	1	1	1	1
History 183 or Latin 301	3	3	3	3	3	3	3	3	3
German 320.....	3	3	3	3	3	3	3	3	3
Geology 13.....	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	.....	.....
Breeds 21.....	1(2)	1(2)	1(2)	1(2)	.....	.....	.....	.....	.....
Landscape Gar. 280.	(2)	(2)	(2)	(2)	.....	.....	.....	.....	.....
Freehand Drawing 383.....	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)
Mech. Drawing 384.	.....	.....	.....	.....	.....	.....	(2)	(2)	(2)
Tech. Instruction 386.....	.....	.....	.....	.....	.....	.....	.....	2	2
Woodwork 386.....	(4)	(4)	(4)	(4)	.....	.....	.....	(6)	(6)
II									
Trigonometry 366...	5	5	5	5	5	5	5	5	5
Rhetoric 163.....	5	5	5	5	5	5	5	5	5
English 164.....	.....	.....	.....	.....	(2)	(2)	.....	.....	.....
Oratory 422.....	1	1	1	1	1	1	1	1	1
History 183 or Latin 301	3	3	3	3	3	3	3	3	3
German 320.....	3	3	3	3	3	3	3	3	3
Veg. Culture 260....	(2)	(2)	(2)	(2)	.....	.....	.....	.....	.....
Zoology 221.....	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	.....	.....	.....
Elem. Mech. 100....	.....	.....	.....	.....	.....	.....	4	4	4
Mech. Drawing 384.	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)
Woodwork 386.....	.....	.....	.....	.....	.....	.....	(4)	(4)	(4)
III									
Trigonometry 366...	.....	.....	.....	.....	.....	.....	2	2	2
Algebra 367.....	.....	.....	.....	.....	.....	3	3	3	3
Rhetoric 163.....	5	5	5	5	5	5	5	5	5
Oratory 422.....	1	1	1	1	1	1	1	1	1
History 183 or Latin 301	3	3	3	3	3	3	3	3	3

Four-Year Courses—Continued.

Term and Subject	Agriculture						Engineering		
	Agronomy	Animal Husbandry	Horticulture	Biology	Chemistry	General	Civil	Electrical	Mechanical
Freshman Year—Continued.									
III—Continued.									
German 320	3	3	3	3	3	3	3	3	3
Farm Crops 2	1(4)	1(4)	1(4)	1(4)	1(4)				
Elem. Pomology 241	1(2)	1(2)	1(2)	1(2)					
Botany 63	2(4)	2(4)	2(4)	2(4)	2(4)	2(4)			
Surveying 101	2(4)	2(4)	2(4)	2(4)	2(4)	2(4)	2(4)	2(4)	
Mech. Drawing 384							(8)	(8)	(8)
Woodwork 386					(4)	(4)			(8)
Sophomore Year.									
I									
Analytics 363							5	5	5
Physics 141				3(4)	3(4)	3(4)	3(4)	3(4)	3(4)
Eng. Comp. 165	1	1	1	1	1	1	1	1	1
Am. Literature 166	3	3	3	3	3	3			
Oratory 423	1	1	1	1	1	1	1	1	1
Latin 302						4			
German 321	3	3	3	3	3	3	3	3	3
Soils 3	2(4)	2(4)	2(4)						
Live Stock Man. 23	2(4)	2(4)							
Landscape Gar. 281			2(4)						
Plant Histology 65	1(6)	1(6)	1(6)	1(6)	1(6)				
Zoology 222				2(2)	2(2)	2(2)			
Chemistry 81	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)
Surveying 102							(4)		
Desc. Geometry 387							1(4)	1(4)	1(4)
Shopwork 388								(4)	(4)
II									
Analytics 368							3	3	3
Calculus 369							2	2	2
Physics 141				3(2)	3(2)	3(2)	3(2)	3(2)	3(2)
Eng. Comp, 165	1	1	1	1	1	1	1	1	1
Am. Literature 166	3	3	3	3	3	3			
Oratory 423	1	1	1	1	1	1			
Latin 302						4			
German 321	3	3	3	3	3	3	3	3	3
Soils 3	2(4)	2(4)	2(4)						
Farm Buildings 461	2(4)	2(4)							
Pomology 242			2(4)						
Plant Physiology 66	2(4)	2(4)	2(4)	2(4)	2(4)				
Zoology 222				2(4)	2(4)	2(4)			
Chemistry 81	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)
Surveying 102							3		
Electricity 120								3	
Desc. Geometry 387							2(4)	2(4)	2(6)
Shopwork 388									(4)

Four-Year Courses—Continued.

Term and Subject.	Agriculture		Horticulture	Biology	Chemistry	General	Engineering		
	Agronomy	Animal Husbandry					Civil	Electrical	Mechanical
Sophomore Year—Continued.									
III									
Calculus 369	.....	.....	.....	.....	.....	.....	5	5	5
Physics 141	.....	.....	.....	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)
Eng. Comp. 165	1	1	1	1	1	1	1	1	1
Am. Literature 166	3	3	3	3	3	3	.....	.....	.....
Oratory 423	1	1	1	1	1	1	.....	.....	.....
Latin 302	.....	.....	.....	.....	.....	4	.....	.....	.....
German 321	3	3	3	3	3	3	3	3	3
Farm Crops 2 or Farm Drainage 4	2(4)	2(4)	2(4)	.....	.....	.....	.....	.....	.....
Fertilizers 6	2(4)	2(4)	.....	.....	.....	.....	.....	.....	.....
Veg. Culture 261	.....	.....	2(4)	.....	.....	.....	.....	.....	.....
Zoology 222	.....	.....	.....	2(2)	2(2)	2(2)	.....	.....	.....
Entomology 223	2(4)	2(4)	2(4)	2(4)	.....	.....	.....	.....	.....
Chemistry 81	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)
Qual. Analysis 82	.....	.....	.....	.....	2(4)	.....	.....	.....	.....
Surveying 102	.....	.....	.....	.....	.....	.....	1(4)	.....	.....
Electricity 120	.....	.....	.....	.....	.....	.....	.....	3	.....
Desc. Geometry 387	.....	.....	.....	.....	.....	.....	2(2)	2(2)	2
Shopwork 389	.....	.....	.....	.....	.....	.....	.....	.....	(8)
Junior Year.									
I									
Calculus 369	.....	.....	.....	.....	.....	.....	5	5	5
Eng. Literature 167	3	3	3	3	3	3	3	3	3
English 169	.....	.....	.....	.....	.....	4*	.....	.....	.....
Eng. Comp. 170	1	1	1	1	1	1	1	1	1
History 184	.....	.....	.....	.....	.....	4*	.....	.....	.....
Oratory 424	.....	.....	.....	.....	.....	4*	.....	.....	.....
Civics 200	3	3	3	3	3	3	3	3	3
German 322	3	3	3	3	3	3	.....	.....	.....
French 340	.....	.....	.....	.....	.....	4	.....	.....	.....
Plant Production 5	3(4)	.....	.....	.....	.....	.....	.....	.....	.....
Farm Management 8	2	.....	.....	.....	.....	.....	.....	.....	.....
Breeds 21	.....	1(6)	.....	.....	.....	.....	.....	.....	.....
Breeding 22	.....	3	.....	.....	.....	.....	.....	.....	.....
Com. Pomology 243	.....	.....	2(2)‖	.....	.....	.....	.....	.....	.....
Veg. Culture 262	.....	.....	2(2)‡	.....	.....	.....	.....	.....	.....
Landscape Gar. 282	.....	.....	2(2)§	.....	.....	2(2)**	.....	.....	.....
Plant Physiology 67	.....	.....	.....	(6)†	.....	.....	.....	.....	.....
Plant Morphology 68	.....	.....	2(4)	2(4)	.....	2(4)*	.....	.....	.....
Eco. Entomology 224	.....	.....	2(4)	2(4)	.....	2(4)*	.....	.....	.....
Entomology 225	.....	.....	.....	1(4)!	.....	.....	.....	.....	.....
Qual. Analysis 82,83	1(8)	1(8)	1(6)	1(6)	1(8)	1(6)	.....	.....	.....
Inorganic Prep. 84	.....	.....	.....	.....	(4)	(4) *	.....	.....	.....
Theo. Chemistry 85	.....	.....	.....	.....	2	2	.....	.....	.....
Org. Chemistry 88	3	3	.....	.....	3	3*	.....	.....	.....
Mineralogy 89	.....	.....	.....	.....	1(4)	1(4)*	.....	.....	.....
Surveying 102	.....	.....	.....	.....	.....	.....	4(4)	.....	.....
Drawing 103	.....	.....	.....	.....	.....	.....	(8)	.....	.....
Dynamos 121	.....	.....	.....	.....	.....	.....	.....	3	3
Elec. Lab. 127	.....	.....	.....	.....	.....	.....	.....	(4)	.....
Machine Design 910	.....	.....	.....	.....	.....	.....	.....	(4)	2(4)
Machine Work 391	.....	.....	.....	.....	.....	.....	.....	(6)	(6)
Steam Engines 392	.....	.....	.....	.....	.....	.....	3	3	3

Four-Year Courses—Continued.

Term and Subject.	Agriculture		Horticulture	Biology	Chemistry	General	Engineering		
	Agronomy	Animal Husbandry					Civil	Electrical	Mechanical
Junior Year—Continued.									
II									
Eng. Literature 167.	3	3	3	3	3	3	3	3	3
English 169						4*			
Eng. Comp. 170	1	1	1	1	1	1	1	1	1
History 184						4*			
Oratory 424						4*			
Civics 200	3	3	3	3	3	3	3	3	3
German 322	3	3	3	3	3	3			
French 340						4			
Animal Nutrition 26		4(2)							
Anat. and Phys. 462.	3	3							
Bacteriology 463	2(4)	2(4)	2(4)	2(4)	2(4)	2(4)**			
Small Fruits 244			1(4)‖			1(4)***			
Prac. Pomology 246.			2(4)‖						
Veg. Culture 263			2‡						
Veg. Culture 264			1(8)‡						
Floriculture 283			2(4)§			2(4)**			
GreenhouseCons.284			2(2)§						
Economic Plants 69.	2(4)		2(4)	2(4)					
Seed Analysis 70				1(6)†					
Zoology 226		1(4)*		1(4)		1(4)***			
Sys. Entomology 226				2(4)!					
Theo. Chemistry 85.					1				
Quan. Analysis 86,87	1(6)	1(4)*			1(12)	1(6)**			
Org. Chemistry 88					3	3***			
Drawing 103							(8)		
Railway Eng. 104							3		
Struct. Design 105							2(4)		
Mech. Materials 106.							3	3	3
Dynamos 121								4	4
Elec. Lab. 127								(4)	
Machine Design 390.								(4)	2(4)
Machine Work 391								(6)	(6)
Graph. Statics 393							4	4	4
III									
Logic 168	3	3	3	3	3	3	3	3	3
English 169						4*			
Eng. Comp. 170	1	1	1	1	1	1	1	1	1
History 184						4*			
Oratory 424						4*			
Business Law 202	3	3	3	3	3	3	3	3	3
German 322	3	3	3	3	3	3			
French 341						3			
Farm Machinery 7	2(4)	2(4)	2(4)						
Dairying 24	3	3(4)							
Animal Nutrition 26		2(2)							
Small Fruits 245			2(4)‖			2(4)***			
Prac. Pomology 246.			2(2)‖						
Veg. Culture 263			2‡						
Veg. Culture 264			1(4)‡						
Veg. Culture 265			2‡						
Plant Materials 285			2(4)§			2(4)**			
Tree Surgery 286			1(4)§						
Micro Botany 71				2(4)†	2(4)	2(4)**			
Veg Pathology 73	2(4)		2(4)	2(4)					
Botany 74				1(6)†					
Zoology 226		1(4)*		1(4)					
Sys. Entomology 227				2(4)!					
Entomology 228				1(6)!					
Theo. Chemistry 85.					1				
Quan. Analysis 87	1(4)	1(4)*				1(6)***			
Org. Chemistry 88					3				

Four-Year Course—Continued.

Term and Subject.	Agriculture		Horti-culture	Biology	Chemistry	General	Engineering		
	Agronomy	Animal Husbandry					Civil	Electrical	Mechanical
Junior Year—Continued.									
III—Continued.									
Vol. Analysis 91	.....	.....	.....	.....	2(10)	2(4)**	.....	.....	.....
Drawing 103	.....	.....	.....	.....	.....	.....	(4)	.....	.....
Railway Eng. 104	.....	.....	.....	.....	.....	.....	3	.....	.....
Struct, Design 105	.....	.....	.....	.....	.....	.....	2(4)	.....	.....
Mech. Materials 106	.....	.....	.....	.....	.....	.....	5	5	5
Practical Prob. 111	.....	.....	.....	.....	.....	.....	(8)	.....	.....
Dynamos 121	.....	.....	.....	.....	.....	.....	.....	3	3
Batteries 126	.....	.....	.....	.....	.....	.....	.....	2	.....
Elec. Lab. 127	.....	.....	.....	.....	.....	.....	.....	(6)	.....
Elec. Design 129	.....	.....	.....	.....	.....	.....	.....	(6)	.....
Machine Design 390	.....	.....	.....	.....	.....	.....	.....	.....	2(8)
Machine Work 391	.....	.....	.....	.....	.....	.....	.....	(4)	(8)
Research and Thesis	(2)	.....	.....	.....	.....	.....	.....	.....	.....
Senior Year.									
I									
Eng. Classics 171	.....	.....	.....	.....	.....	4	.....	.....	.....
Psychology .172	4	4	4	4	4	4	.....	.....	4*
Eng. Comp 174	1	1	1	1	1	1	1	1	1
Economics 201	4	4	4	4	4	4	4	4	4
Economics 203	.....	.....	.....	.....	.....	4*	.....	.....	.....
Civics 204	.....	.....	.....	.....	.....	4*	.....	.....	.....
Latin 303	.....	.....	.....	.....	.....	4*	.....	.....	.....
German 322	.....	.....	.....	.....	.....	4*	.....	.....	4*
French 342	.....	.....	.....	.....	.....	4*	.....	.....	.....
Crop Production 9 or Soils 10	3(4)	.....	.....	.....	.....	.....	.....	.....	.....
Dairying 24	.....	1(6)*	.....	.....	.....	.....	.....	.....	.....
Stock Judging 25	.....	(4)	.....	.....	.....	.....	.....	.....	.....
Animal Nutrition 26	.....	2(4)	.....	.....	.....	.....	.....	.....	.....
Farm Forestry 40	2(4)	2(4)	2(4)	.....	.....	.....	.....	.....	.....
Sys. Pomology 247	.....	.....	2(4)‖	.....	.....	.....	.....	.....	.....
Small&VineFr'ts 248	.....	.....	2(2)‖	.....	.....	.....	.....	.....	.....
Veg, Culture 266	.....	.....	3(6)‡	.....	.....	.....	.....	.....	.....
Landscape Des. 287	.....	.....	2(4)§	.....	.....	2(4)*	.....	.....	.....
Civic Art 288	.....	.....	2(2)§	.....	.....	.....	.....	.....	.....
Botany 75	.....	.....	.....	4(6)†	.....	.....	.....	.....	.....
Entomology 234	.....	.....	.....	4(6)!	.....	.....	.....	.....	.....
Botany 75 or Entomology 234	.....	.....	.....	3(6)	.....	.....	.....	.....	.....
			2						
Quan. Analysis 87	(4)	(4)	.....	.....	.....	.....	.....	.....	.....
Agr. Chemistry 92	4	4*	4	.....	4	4*	.....	.....	.....
Agr. Analysis 93	.....	.....	.....	.....	(24)	(8)*	.....	.....	.....
Hydraulics 107	.....	.....	.....	.....	.....	.....	3	3	.....
Highways 108	.....	.....	.....	.....	.....	.....	4	.....	.....
Practical Prob. 111	.....	.....	.....	.....	.....	.....	(12)	.....	.....
Alternators 122	.....	.....	.....	.....	.....	.....	.....	5	.....
Elec, Lights 123	.....	.....	.....	.....	.....	.....	.....	2	.....
S.C. Laboratory 128	.....	.....	.....	.....	.....	.....	.....	(8)	.....
Atruct. Design 394	.....	.....	.....	.....	.....	.....	2(4)	.....	2(4)
Mech. of Eng. 395	.....	.....	.....	.....	.....	.....	3	.....	3
Thermodynamics 396	.....	.....	.....	.....	.....	.....	.....	2	2
Heat and Vent, 397	.....	.....	.....	.....	.....	.....	.....	.....	2(2)
Exp'mental Eng. 399	.....	.....	.....	.....	.....	.....	.....	.....	(8)
.....	.....	.....	(2)‖	.....	.....	.....	.....	.....	.....
Research and Thesis	(2)	.....	(4)‡	1(4)	.....	.....	.....	(8)	.....
.....	.....	.....	(2)§	.....	.....	.....	.....	.....	.....

Four-Year Courses—Continued.

Term and Subject.	Agriculture		Horticulture	Biology	Chemistry	General	Engineering		
	Agronomy	Animal Husbandry					Civil	Electrical	Mechanical
Senior Year—Continued.									
II									
Eng. Classics 171						4			
Pedagogics 173	4	4	4	4	4	4	4*		
Eng. Comp. 174	1	1	1	1	1	1	1	1	1
Economics 201	4	4	4	4	4	4	4	4	4
Economics 203						4*			
Civics 204						4*			
Latin 303						4*			
German 322			4			4*	4*		
French 342						4*			
Poultry 28		2							
Bacteriology 464	(8)	(8)							
Animal Diseases 466	5(6)	5(6)							
Sys. Pomology 247			2(2)‖						
Horticulture 249			1(2)‖						
Plant Breeding 255	2		2‖						
Veg. Culture 267			4(4)‡						
Planting Plans 289			2(6)§			2(4)*			
Floral Dec. 290			(2)§						
App. Entomology 232			2(4)						
Botany 75				4(6)†					
Entomology 234				4(6)!					
Botany 75 or Entomology 234				3(6)					
Organic Prep. 90					(16)				
Chemistry 94					6(4)	6(4)*			
Hydraulics 107							5	5	
Practical Prob. 111							(4)		
Computing 112							(6)		
Alternators 122								3	
Elec. Lights 123								2	
Tel. and Tel. 124								2	
A. C. Laboratory 128								(8)	
Struct. Design 394							2(4)*		2(4)
Mech. of Eng. 395							4		4
Thermodynamics 396									3
Hydromechanics 398									3
Exp'mental Eng. 399									(8)
Research and Thesis	(4)	(4)	(2)‖ (4)‡ (4)§	1(4)			(4)	(8)	(4)
III									
Eng. Classics 171						4			
Pedagogics 173	4	4	4	4	4	4	4*		
Eng. Comp. 174	1	1	1	1	1	1	1	1	1
Economics 201	4	4	4	4	4	4	4	4	4
Economics 203						4*			
Civics 204						4*			
Latin 303						4*			
German 322						4*	4*		
French 342						4*			
Farm Management 8	2(4)								
Crop Production 9 or Soils 10	3(4)								
Stock Judging 25		(4)							
Animal Nutrition 26		3(2)							
Small Fruits 250			2(4)‖						
Pomology 251			2(2)‖						
Nut Culture 252			2(2)‖						
Plant Breeding 255	2(2)		2(2)‖						
Veg. Culture 267			4(4)‡						
Veg. Culture 268			4(4)‡						
Exotics 291			2§						
Landscape Gar. 292			2(2)§						
Landscape Prac. 293			2(8)§			2(4)*			
Animal Parasites 233		2(4)							

Four-Year Courses—Continued.

Term and Subject.	Agriculture		Horticulture	Biology	Chemistry	General	Engineering		
	Agronomy	Animal Husbandry					Civil	Eletrical	Mechanical
Senior Year—Continued.									
III—Continued.									
Botany 75	.....	.....	.....	4(6)†	.....	.....	.....	.....	.....
Entomology 234	.....	.....	.....	4(6)!	.....	.....	.....	.....	.....
Botany 75 or Entomology 234	.....	.....	.....	3(6)	.....	.....	.....	.....	.....
Chemistry 95	.....	.....	.....	.....	5(2)	5(6)*	.....	.....	.....
Surveying 101	.....	.....	.....	.....	.....	.....	(4)	.....	.....
Est. of Cost 109	.....	.....	.....	.....	.....	.....	1(2)	.....	.....
Concrete 110	.....	.....	.....	.....	.....	.....	2	.....	.....
Practical Prob. 111	.....	.....	.....	.....	.....	.....	(4)	.....	.....
Alternators 122	.....	.....	.....	.....	.....	.....	.....	5	.....
Tel. and Tel. 124	.....	.....	.....	.....	.....	.....	.....	2	.....
Elec. Railways 125	.....	.....	.....	.....	.....	.....	.....	3	.....
A.C. Laboratory 128	.....	.....	.....	.....	.....	.....	.....	(6)	.....
Alt. Design 130	.....	.....	.....	.....	.....	.....	.....	(6)	.....
Struct. Design 394	.....	.....	.....	.....	.....	.....	2(4)*	.....	2(6)
Mech. of Eng. 395	.....	.....	.....	.....	.....	.....	4	.....	4
Thermodynamics 396	.....	.....	.....	.....	.....	.....	.....	.....	3
Exp'mental Eng. 399	.....	.....	.....	.....	.....	.....	.....	.....	(4)
.....	.....	.....	(6)‖	.....	.....	.....	.....	.....	.....
Research and Thesis	2(4)	4(4)	(8)‡ 2(8)§	1(4)	(20)	.....	(8)	(8)	2(8)
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

*Courses marked with asterisks are alternative. Senior students in the General Course must elect from the alternative courses a sufficient number to cover 12 periods of work.

‖For students specializing in Pomology.

‡For students specializing in Vegetable Culture.

§For students specializing in Landscape Gardening and Floriculture.
For students specializing in Botany.

!For students specializing in Entomology.

Sub-Collegiate Courses.

Preparatory Year.				Sub-Freshman Year.			
Subject.	Term.			Subject.	Term.		
	I	II	III		I	II	III
Arithmetic 360	(2)	(2)	(2)	Algebra 362	4	4	4
Algebra 362	5	5	5	Plane Geometry 363	4	4	4
English 160	5	5	5	Physics 140	3	3	3
Elocution 420	(2)	(2)	(2)	English 161	5	5	5
U. S. History 180	5	5	.....	Elocution 421	(2)	(2)	(2)
English History 181	.....	.....	5	General History 182	2	3	3
Latin 300	4	4	4	Latin 301	3	3	3
Phys. Geography 14	.....	(4)	.....	Agronomy 1	.....	.....	(2)
Animal Husbandry 20	(2)	.....	.....	Sanitation 460	.....	(2)	.....
Horticulture 240	.....	.....	(2)	Botany 61	(2)	.....	.....
Plant Life 60	.....	.....	(2)	Entomology 220	.....	.....	(2)
Animal Life 220	(2)	.....	.....	Shopwork 382	(4)	.....	.....
Freehand Drawing 380	(4)	(4)	.....	Hygiene 441	.....	(2)	.....
Shopwork 381	.....	.....	(4)	.....	.....	.....	.....

Two-Year Courses.

First Year.		Second Year.			
Agriculture and Horticulture.		Agriculture.		Horticulture.	
TERM I.					
Soils 3	2(4)	Plant Production 5	3(4)	Commercial Pomology 243	2(2)
Breeds and Scoring 21	1(2)	Farm Machinery 7	2(4)	Vegetable Culture 266	3(6)
Fruit Growing 242	2(4)	Farm Management 8	2	Home Grounds 281	2(4)
Landscape Gardening 280	(2)	Principles of Breeding 22	3	Farm Machinery 7	2(4)
Seeds and Weeds 62	(4)	Animal Nutrition 26	2	Farm Management 8	2
Farm Chemistry 80	2(2)	Farm Forestry 40	2(4)	Farm Forestry 40	2(4)
Farm Arithmetic 360	3	Commercial Pomology 243	2(2)	Farm Literature 162	(2)
English 161	5	Farm Literature 162	(2)	English Composition 165	1
Farm Literature 162	(2)	English Composition 165	1		
TERM II.					
Soils 3	2(4)	Grain Judging 11	2(4)	Small Fruits 244	1(4)
Fruit Growing 242	2(4)	Stock Judging 25	(4)	GreenhouseCrops 264	1(8)
Vegetable Culture 260	(2)	Animal Nutrition 26	2	Greenhouse Construction 284	2(2)
Farm Buildings 461	2(4)	Stock Feeding 27	(4)	Spraying 231	2(2)
Farm Chemistry 80	2(2)	Poultry 28	2	Poultry 28	2
English 161	5	Dairy Bacteriology 465	(2)	Animal Diseases 467	2(4)
Farm Literature 162	(2)	Animal Diseases 467	2(4)	Farm Literature 162	(2)
Mechanical Drawing 384	(4)	Small Fruits 244	1(4)	English Composition 165	1
Farm Woodwork 386	(4)	Farm Literature 162	(2)	Business Law 202	3
		English Composition 165	1		
		Business Law 202	3		
TERM III.					
Farm Crops 2 Farm Drainage 4	2(4)	Fertilizers 6	2(4)	VegetableCulture 265	2
		Crop Production 9 or Soils 10	3(4)	VegetableCulture 267	(4)
ElementaryPomology 241	1(2)			Floriculture 283	2(4)
Farm Botany 64	2(4)	Dairying 24	3(4)	Plant Materials 285	2(4)
Farm Zoology 229	2	Vegetable Culture 267	(4)	Fertilizers 6	2(4)
Farm Chemistry 80	2(2)	Plant Diseases 72	2(2)	Plant Diseases 72	2(2)
Farm Accounts 361	(4)	Insect Pests 230	2(4)	Insect Pests 230	2(4)
English 161	5	Farm Literature 162	(2)	Farm Literature 162	(2)
Farm Literature 162	(2)	English Composition 165	1	English Composition 165	1

GENERAL INFORMATION.

REQUIREMENTS FOR ADMISSION TO THE COLLEGE.

A candidate for admission to the College must present, together with his Scholastic Record, a certificate of good moral character; and if the candidate be from another school or college, the certificate must show that he left such institution in good standing.

METHODS OF ADMISSION.

There are two methods of gaining admission to the Freshman Class:

(1.) *By Certificate.*—The College will accept certificates from approved high schools of Maryland and the District of Columbia, and from accredited academies and preparatory schools of this State and of other States.

The certificates presented by the candidate must be officially certified by the principal of the school attended. It must state in detail the work completed by the candidate and, if the candidate be from a Maryland high school, the certificate should state that the candidate has completed, at least, the tenth year of the course of study as outlined for Maryland schools by the State Board of Education.

All admissions by certificates are regarded as merely provisional. That is, while a student presenting a proper certificate is admitted to such standing as it shows him entitled to, he may be required to take a special examination or to do special work in any subject in which his preparation proves to be unsatisfactory; or if, after a fair trial, he fails to maintain a standing in the class to which he was admitted, he may be dropped to a lower class.

Blank certificates conveniently arranged for the desired data, will be sent to all principals and, upon application, to prospective students.

(2.) *By Examination.*—Candidates not admitted by certificate will be required to stand written examinations upon the entrance subjects. These examinations will be held for 1913 on June 11th and 12th, and September 16th and 17th.

Requirements for admission to the Freshman Class for the session of 1913-14 will be as follows:

Number of Units Required.—For the present, thirteen (13) units are required for entrance. This is equivalent to the completion of, at least, the tenth grade of the course of study as outlined for Maryland schools by the State Board of Education. A unit designates not less than four or five "periods" of classroom work or eight or ten "periods" of laboratory work per week, continued throughout the school year, each "period" being not less than forty minutes.

DISTRIBUTION OF THE REQUIRED UNITS.

Of the thirteen (13) units required for admission to the Freshman Class, eleven and one-half (11½) are specified as follows:

Group I	English		3	units	5½ required
	Mathematics	Algebra	1½	"	
		Plane Geometry	1	"	
Group II	American History and Civics		1	"	2 required
	English History		1	"	
	Ancient History		1	"	
	General History		1	"	
Group III	Latin		1 or 2	"	2 required
	German		1 or 2	"	
	French		1 or 2	"	
Group IV	Physics		1	"	2 required
	Chemistry		1	"	
	Botany		½	"	
	Physical Geography		½	"	
	Zoology		½	"	
	Physiology		½	"	
Group V	Shop Work		½	"	0 required
	Drawing		½	"	
	Special Agricultural Subjects		½	"	

The additional one and one-half (1½) units may be offered from Groups II, III, IV or V.

Deficiencies.—A deficiency of two units will be allowed a candidate as conditions, but such conditions must be removed by the end of the Scholastic Year in which the candidate is admitted.

SUGGESTIONS FOR PREPARATION IN THE REQUIRED SUBJECTS.

GROUP I.

ENGLISH.—Preparation in English has two main objects: (1), command of correct and clear English, spoken and written; (2), power to read with intelligence and appreciation.

To secure the first end, training in grammar and the simple principles of rhetoric and the writing of frequent compositions are essential. The candidate must be able to spell, capitalize and punctuate correctly. He must show a practical knowledge of the essentials of English grammar, including ordinary grammatical terminology, inflection, syntax, the use of phrases and clauses; a thorough training in the construction of the sentence; and familiarity with the simpler principles of paragraph division and structure.

To secure the second end the candidate is required to read the works named below under A and B. The list is intended to give the candidate the opportunity of reading, under intelligent direction, a number of important pieces of literature.

ENGLISH A. For reading and practice. (One and one-half units.) The candidate should read the works prescribed below with a view to understanding and enjoying them. He will be expected to show a reasonable degree of familiarity with their substance. The form of examination will usually be the writing of a paragraph or two on each of several topics, to be chosen by the candidate from a considerable number set before him in the examination paper.

FOR STUDENTS ENTERING IN 1913:

Shakespeare's "As You Like It" and "Julius Caesar"; Addison's "Sir Roger de Coverley Papers"; Scott's "Ivanhoe"; Goldsmith's "Vicar of Wakefield"; Irving's "Sketch Book"; Macaulay's "Lays of Ancient Rome"; Longfellow's "Evangeline"; Lowell's "Vision of Sir Launfal"; Poe's "Raven"; Eliot's "Silas Marner"; Gray's "Elegy Written in a Country Churchyard."

ENGLISH B. For study and practice. (One and one-half units.) The candidate should read the books presented below with the view of acquiring such knowledge of their contents as will enable him to answer specific questions with accuracy and some detail. The examination is not designed, however, to require minute drill in difficulties of verbal expression, unimportant allusions and technical details.

FOR STUDENTS ENTERING IN 1913:

Shakespeare's "Macbeth"; Milton's "L'Allegro," "Il Penseroso," and "Comus"; Macaulay's Essay on Johnson or Carlyle's Essay on Burns; Washington's Farewell Address and Webster's First Bunker Hill Oration or Burke's Speech of Conciliation with America.

ALGEBRA TO QUADRATICS. (One unit.) As treated in the algebras of Wells, Wentworth, Tanner, Fine, or an equivalent. The four fundamental operations; factoring; highest common factor and least common multiple; fractions (including their conception as ratios) and complex fractions; powers and roots; the solution of linear equations, both numerical and literal, and of problems depending on linear equations; radicals and the theory of exponents; and the solution of simple second degree equations in one unknown quantity by factoring.

ALGEBRA FROM QUADRATICS. (One-half unit.) As treated in the algebras of Wells, Wentworth, Tanner, Fine, or an equivalent. Equations with one or more unknown quantities, to be solved by the methods of linear or quadratic equations; ratio, proportion and variation; variables and limits; properties of series, including the binomial theorem for positive integral exponents, and the formulas for the nth term and sum of the terms of arithmetical and geometrical progressions with applications; logarithms.

PLANE GEOMETRY. (One unit.) As treated by Wentworth, McMahon, Phillips and Fisher, or an equivalent. The usual theorems and constructions, including the general properties of plane rectilinear figures, the circle and measurement of angles, similar polygons, areas, regular polygons and the measurement of the circle; the solution of original exercises, including loci problems; and the application to the mensuration of lines and plane surfaces. The student should be able to prove every statement made, going back step by step until it rests upon primary definitions or axioms.

GROUP II.

AMERICAN HISTORY. (One unit.) Channing's Student's History of the United States, McLaughlin's History of the American

Nation, Hart's Essentials in American History, or an equivalent. The discovery, exploration and settlement of America; the colonial policy of England, culminating in the Revolution; the political, economic and social history of the United States since the adoption of the Constitution.

Ancient History to 300 A. D. (One unit.) If a single text book is used, it should be West's Ancient World, Wolfson's Essentials in Ancient History, Morey's Outlines of Ancient History, or an equivalent.

English History. (One unit.) Cheyney's A Short History of England, Andrew's History of England, Walker's Essentials in English History, Montgomery's English History, or an equivalent.

General History. (One unit.) Myer's, Fischer's or Colby's General History, or an equivalent.

The entrance examinations in History will be so framed as to require comparison and the use of the judgment, rather than the mere use of the memory.

GROUP III.

Elementary French. First Year (One unit.) Aldrich and Foster's Foundations of French and French Reader, or their equivalents.

Second Year (One unit.) Reading of four to five hundred pages of graduated texts.

Elementary German. First Year (One unit.) Bacon's German Grammar, or an equivalent.

Second Year (One unit.) Reading of about 300 pages of graduated texts.

Latin. First Year (One unit.) First Latin Book completed.

Second Year (One unit.) Three Books of Caesar, or an equivalent.

Forms and constructions needed in texts from Standard Latin Grammar. Prose based on texts.

GROUP IV.

Physics. (One unit.) As much as is contained in the text-books of Carhart and Chute, Hall and Bergen, Gage's Elements of Physics, Avery's Elements of Natural Philosophy, or an equivalent.

Botany. (One unit.) As much as is contained in Gray's Lessons, Bailey's Elementary Botany, Bergen's Foundations, or an equivalent.

Chemistry. (One unit.) Preparation should include the study of at least one standard text-book, to the end that the pupil may gain a comprehensive and connected view of the most important facts of elementary chemistry. The subjects should be attempted only in schools which possess an adequate equipment; laboratory work is essential and original notes must be submitted; more importance will attach to descriptive chemistry than to analytical, and the student should become as familiar as possible with the commonest non-metals and metals, as well as their simpler compounds.

Physical Geography. (One-half unit.) A study of the earth, atmosphere, waters and attendant phenomena; the distribution of both animal and vegetable life, and the various industries resulting from the development of the natural resources of the earth.

Text-books on Physical Geography by Gilbert, Davis, Fairbanks, Tarr, or an equivalent.

Physiology. (One-half unit.) The preparation should include the general facts of the anatomy, histology and physiology of the human body and the essentials of hygiene. A text-book, such as the first part of Hough and Sedgwick's The Human Mechanism, or an equivalent should be used in connection with charts and models.

Zoology. (One-half unit.) The preparation in Zoology should include a general knowledge of common animals of the locality with regard to their ecological relations; the general study of the animal forms such as the Amoeba, a ciliate, an earth worm, insect, frog and mammal. He should have some work in the general physiology of these types and a comparison of life processes in animals and plants. The student should have such general knowledge of the animal kingdom, the characteristics of the Phyla and principal classes of animals as is given in Davison's Practical Zoology.

GROUP V.

Shopwork. (One-half unit.) A candidate who offers shopwork as an entrance subject is asked to present a detailed state-

ment from his instructor, setting forth the kind and amount of work done.

Drawing. (One-half unit.) Candidate must present a detailed statement from his instructor showing the kind and amount of work done and submit drawings done by himself.

Special Agricultural Subjects. (One-half unit.) This class includes nature studies and other allied subjects not specifically designated in Group IV.

For Advanced Standing. Applicants for advanced standing in any course, in addition to satisfying the requirements for admission to the Freshman Class, must pass an examination in the studies which have been pursued by the class for which they are candidates. Work done elsewhere is accepted when properly certified and found on examination to be equivalent in extent and quality to that required at this College.

Examinations for Admission to Any Higher Class will be held at the College in June and September at the same times as examinations for admission to the Freshman Class.

Candidates for the Sub-Freshman Class will be required to present certificates or to pass examinations covering the work outlined for the Preparatory Class, or an equivalent.

For Entrance to the Preparatory Class the requirements are: English grammar, arithmetic, United States history and geography.

Students from newly acquired territory or any foreign country must have a local guardian appointed with parental powers, with whom the President can deal in any case of emergency. Students who cannot speak English are undesirable, and are advised that satisfactory progress at this College on their part cannot be expected until they have familiarized themselves partly, at least, with the English language.

EXAMINATIONS AND PROMOTIONS.

In order to pass from one class to the next higher a student is required to pass an examination in each study pursued, by a mark of at least sixty per cent., and to have a combined mark in each branch (daily and examination) of at least seventy per cent.

A student will not be promoted if it is manifest that he cannot pursue successfully the advanced work.

For rules for military promotions see Military Department.

REPORTS.

Detailed reports are sent to parents and guardians at the end of every quarter. These give the grade of the student in every branch of study, his attendance record, and his conduct record with comment by the President upon each item.

In addition to this, monthly reports are issued for October, November, January, February and April. These give general information as to scholarship, conduct, attendance and health, and call attention to deficiency in any one of these particulars.

GRADUATION AND DEGREES.

Degrees are granted by the Board of Trustees upon the recommendation of the Faculty.

All applications for degrees must be approved by the Faculty.

BACHELOR OF SCIENCE.

As a requisite for graduation the candidate for this degree must have completed the work previously outlined, including a thesis.

The subject for this thesis must be approved prior to February 1st, by the head of the department in which the investigation is to be pursued, and the thesis must be submitted not later than May 15th.

MASTER OF SCIENCE.

The degree of Master of Science may be conferred as follows:

1. Upon persons who have taken the degree of Bachelor of Science in a recognized institution, and have pursued successfully at this College for one year a course of graduate study, satisfying the following requirements:

The course shall consist of a major subject and two minor subjects germane to the major subject and shall be approved by the professor in charge of the major subject.

At least one minor subject shall be in a different department from the major subject.

The course shall occupy not less than fifteen credit periods per term.

Not fewer than five credit periods per term shall be devoted to the minor subjects.

A thesis satisfactory to the professor in charge of the major subject shall be presented.

2. Upon college graduates of not less than two years' standing, who are employed in any of the departments of the College, including the Experiment Station, and who have completed the equivalent of the above course of study. Candidates under this clause must have their applications approved at least eighteen months before they contemplate receiving their degree.

3. Upon graduates of this College of not less than three years' standing, who having been connected with institutions of learning or research, where adequate facilities for advanced work are available, have completed a course equivalent to (1) and have presented a satisfactory thesis.

MASTER OF ARTS.

The degree of Master of Arts may be conferred upon graduates of this College holding the Bachelor of Arts degree, and who conform to the following rules:

1. The candidate must apply for the degree in writing at least one scholastic year before the degree may be conferred. The application must contain a description of extra work, by virtue of which the candidate expects to receive the degree.

2. The candidate must submit one or more theses on subjects assigned by the Professor of English and Civics; said thesis or theses must be approved by the President of the College, the Professor of English and Civics and the Professor of Languages of this College.

3. The candidate must be prepared to submit to an examination in the works of the following authors: Cæsar, Nepos, Sallust,

Virgil, Cicero, Ovid, Horace, Livy, Tacitus, Plautus, Terence, Juvenal.

MECHANICAL ENGINEER.

The degree of Mechanical Engineer (M. E.) may be conferred as follows:

1. Upon graduates of this College of not less than three years' standing, who having been connected with institutions of learning or research, where adequate facilities for advanced work are available, have completed a course consisting of a major and two minor subjects, and presented a satisfactory thesis. The course of study shall be outlined by the heads of the Departments of Civil, Electrical and Mechanical Engineering.

2. Upon graduates of this College who have had three years' professional experience of an acceptable character. Such candidates must present a full report of such experience and such other information as to the qualifications for the degree as may be found desirable, and in addition shall present a satisfactory thesis.

3. All candidates must be at least Junior members of the American Society of Mechanical Engineers. All applications for degrees must be approved twelve months prior to the date they contemplate receiving the degree, and the thesis must be presented at least one month prior to such date.

CIVIL ENGINEER.

The degree of Civil Engineer may be conferred upon any candidate who is a graduate of this College with the degree of Bachelor of Science in Civil Engineering, and has been engaged in engineering pursuits for not less than three years since graduation, provided:

1. That he shall be at least a Junior member of the American Society of Civil Engineers.

2. That he shall accompany his application with a synopsis of the work upon which he bases his request.

3. That the Committee composed of the heads of the Civil, Electrical and Mechanical Engineering Departments, to whom his application shall be referred, shall consider him eligible.

4. That previous to receiving the degree he shall comply with such further conditions as the aforesaid committee shall impose.

SCHOLARSHIPS.

REGULAR.—To encourage worthy young men who desire a collegiate education, the Board of Trustees has established for each county in the State of Maryland and for each of the four legislative districts of Baltimore city one scholarship to be awarded under the following conditions:

1. The holder of the scholarship will be allowed a reduction of $120.00 from the regular annual charge of $240.00 for board, heat, light, room, use of books, laundry, etc.

2. The appointment is made by the School Board of each county and of Baltimore city after due notice in some local paper.

3. In case there are more applicants than one, the selection shall be made by competitive examination and the candidate who proves best qualified by such examination shall be selected for this scholarship.

4. In case of a tie, the award shall be made to the candidate less able financially to meet the expense of an education.

5. An alternate may be named and certified to the President of the College and said alternate shall be eligible to hold the scholarship if the principal shall fail to qualify or withdraw during the year succeeding his appointment.

6. The appointment shall be made for a term of four years.

7. The holder of such scholarship: (a)—must be qualified to enter the Sub-Freshman Class of this College, that is, he shall have a competent knowledge of arithmetic, algebra as far as quadratics, geography, history of Maryland and history of United States, English grammar and composition; (b)—must be of approved moral character and at least 15 years of age.

8. The scholarship will be forfeited by persistent indifference to scholastic work or by continued disregard of the rules of discipline of the College.

9. The scholarship will be forfeited in case the holder fails of promotion at the end of any scholastic year, unless there are extenuating circumstances.

10. Certificates will be furnished in blank by the College and one shall be given to the successful applicant and a duplicate sent to the President of the College.

11. In case any county or district fails to send one or more candidates for examination to fill an existing vacancy, or in case of the failure of both principal and alternate to meet the requirements of the College, the vacancy may be filled for the current Collegiate Year at the discretion of the President, by any meritorious student from another county who meets the requirements, and at the end of that year, the vacancy shall be again certified to the county or district to which it pertains.

INDUSTRIAL.—For the encouragement of worthy young men of limited means, towards getting a college education, a limited number of industrial scholarships has been established by the Board of Trustees to be awarded under the following conditions:

1. The number of scholarships will depend upon the amount of service required.

2. The holder will receive a reduction of $140.00 from the regular annual charge of $240.00 for board, heat, light, room, use of books, laundry, etc.

3. In consideration of this reduction, the holder of such a scholarship will be required to render to the College certain specified services such as work in the dining-room, on the corridors, in the library, etc.

4. Such services will not prevent the holder from drilling with the cadet battalion on alternate days.

5. Vacancies as they occur shall be filled by the President of the College and ratified by the Executive Committee of the Board of Trustees.

6. The holder of an industrial scholarship: (a)—must be more than 15 years of age and of normal size, health and strength; (b)—must be of approved moral character as attested by some well-known resident of his locality; (c)—must be qualified to enter the Sub-Freshman Class of the College, that is, he shall have a compe-

tent knowledge of arithmetic, algebra as far as quadratics, geography, history of Maryland and history of United States, English grammar and composition.

7. The appointment shall be made for a term of four years.

8. The scholarship will be forfeited by persistent indifference to scholastic work or by continued disregard of the rules of discipline of the College.

9. The scholarship will be forfeited in case the holder fails of promotion at the end of any scholastic year, unless there are extenuating circumstances.

10. The scholarship will be forfeited in case the services required of the holder are not satisfactory to those in charge of the work.

STUDENT OPPORTUNITIES.

A limited amount of money can be earned by students by taking advantage of the opportunities arising from time to time to do clerical work, tutoring and such other labor as may not interfere with the regular scholastic duties. Those in need of help to continue their work, and whose course is marked by an earnest desire to succeed, are always given the preference.

FACILITIES FOR RELIGIOUS WORSHIP.

The College is undenominational in character. The daily exercises of the College are opened with religious worship in the College Chapel.

Students are encouraged to attend the church of their choice on Sunday mornings. There is an Episcopal church at College Park; and at Berwyn, one mile north, and at Riverdale, one mile south, are Presbyterian churches. In Hyattsville, two miles south, may be found Catholic, Episcopal, Presbyterian, Baptist and Methodist churches. In the city of Washington are churches of all denomi-

nations, and leave is granted to students to attend service in this city on Sunday mornings. Parents are urged to insist upon their sons attending the church of the faith of their parents.

COLLEGE REGULATIONS.

The attention of parents is earnestly called to the following rules in force at this College: The College authorities can succeed in conferring the maximum amount of training upon the student only with and by the active support and earnest co-operation of the parent. The President of the College is always ready and willing to discuss with his parent or guardian any failures in a student's record, and correspondence on this subject is always appreciated.

No student will be accepted as a matriculate until the contract card containing the following agreement for matriculation is signed by parent or guardian, and received by the President of the College.

It is understood that the President of the College as the executive of the same, and acting for the Board of Trustees, a party to this contract, *has the right to ask the withdrawal of a student at any time, when in his judgment such withdrawal may be necessary either for the interest of the young man or the institution which he attends. It is further understood that a parent or guardian can at any time withdraw his son or ward, subject to regulations herein set forth.*

A cadet manifesting indifference to the observance of the rules and regulations of the institution, or wanting in proper attention to the preparation of his work, will be cautioned to improve. Failing to do so his parents, upon notice given by the President, must withdraw their son.

A special pledge to refrain from what is popularly known as *"hazing,"* and taking unfair means in examinations is required of every applicant for entrance, before he will be allowed to matriculate. Parents should impress upon their sons that failure to live up to this pledge is a dishonor which unfits them to be longer stu-

dents of the College. *"Hazing" is invariably punished by instant dismissal.*

Frequent absences from the College are invariably of great disadvantage to the student, in breaking in upon the continuity of his work and in distracting his mind from the main purpose of his attendance at the institution. Parents are therefore earnestly asked to refrain from granting frequent requests to leave the College.

Students will not be permitted to leave classes or quarters during study hours to answer telephone calls, unless they are urgent.

Students will not be permitted to make contracts or to sell any article to their associates without the approval of the President.

The sale of second hand furniture or clothing to new cadets is prohibited unless the sale be approved by the Commandant of Cadets.

The College will not be responsible for articles left in the barracks during vacation, nor for valuables left by students in their rooms at any time. They should be deposited with the College Treasurer, who will place them in the College safe and give a receipt therefor.

RULES OF COMMITTEE ON COLLEGIATE ROUTINE, ENDORSED BY THE FACULTY.

1. A student may not change his course of study unless at the written request of his parent or guardian, and after said request has been endorsed by the head of the course abandoned, and the head of the course requested, and approved by this committee.

2. Examinations to make up conditions acquired in any term will be given only on the mornings and afternoons of certain Saturdays in the following term set apart for this purpose, and at such dates as shall be provided for entrance examinations at the beginning of the scholastic year. On these dates students having conditions will be expected to take the examinations as scheduled and will be permitted to do so without the payment of a fee. Should, for any reason, an examination be requested at any other time, a charge of $1.00 will be made for each subject on which the applicant is examined, provided that all such special examinations shall be authorized by the faculty.

3. To attain proficiency a student must make an examination grade of 60 per cent.; also a term average of 70 per cent. In case of failure, upon re-examination a grade of 70 per cent. is required.

4. A credit period is one theoretical or two practical periods per week for one term.

5. A student may not be promoted if conditioned in more than one-fifth of the credit periods required for one year's work, provided that no student may be promoted with more than one condition in any one department.

6. A student may not be promoted if he has any conditions of more than a year outstanding.

7. Any student who uses unfair means in examination will: (1) receive no further examination in same subject; (2) receive zero for examination grade; (3) receive no commission; (4) receive no diploma.

8. A student is subject to an oral examination at any time within ten days after written examination.

9. An examination paper, containing erasures or showing alterations, may be rejected at the discretion of the Professor in charge, and a new examination ordered by this committee.

10. In computing term averages the daily grade is computed at 2, and the examination grade at 1.

11. The yearly averages in all studies is computed by giving each subject a weight according to the mean number of periods per week involved; theoretical periods being given a value of 2, practical periods 1.

12. Senior students must submit subjects for graduating theses prior to February 1st, and all theses for graduation must be completed prior to May 15th.

13. No special courses are permitted save by consent of this committee. In case consent is granted for a special course, the certificate awarded attesting work will not have the College seal nor the Governor's signature.

14. No student may take work in more than one class during any one term.

STUDENT EXPENSES.

The expenses of the College Year for the several classes of students are as follows:

Boarding Students.—Board, heat, light, room, use of books, and laundry, $240.00 in four equal instalments in advance.

Scholarship Students.—Board, heat, light, room, use of books, and laundry, $120.00 in four equal instalments in advance.

Day Students.—Room, heat, tuition, and use of books, $50.00 in four equal instalments in advance.

Students entering College after November 1st, or withdrawing prior to the close of the scholastic year, will be charged for the time they are in attendance, as follows:

Boarding students at the rate of $30.00 per month.

Scholarship students at the rate of $15.00 per month.

Day students at the rate of $6.00 per month.

Students withdrawing more than two weeks after entrance will be charged for at least one month's attendance.

Students withdrawing less than two weeks after entrance, will be charged at the rate of $2.00 per day.

Table board for students not rooming at the College will be $14.00 per month, or 25 cents per meal.

No charges against students are discontinued until formal withdrawal has been made.

Students are required to deposit with the Treasurer upon entering the College $15.00 to cover room supplies for the year and general breakage. A deduction in this amount will be made for students furnishing their own supplies.

No diploma will be conferred upon, nor any certificate issued to any student who is in arrears in his account with the College.

Students failing to pay the quarterly charges within 30 days from time due, will be required to withdraw until settlement is made.

No reductions are made for regular vacations.

TIME OF PAYMENT.

For Boarding Students, $60.00 on entrance, $60.00 November 15th, $60.00 February 1st, $60.00 April 1st.

For Scholarship Students, $30.00 on entrance, $30.00 November 15th, $30.00 February 1st, $30.00 April 1st.

For Day Students, $12.50 on entrance, $12.50 November 15th, $12.50 February 1st, $12.50 April 1st.

Students will be required to pay a fee of 25 cents per piece for transportation of baggage to and from station.

In cases of illness, requiring a special nurse and medical attention, the expense must be borne by the student.

Students will be admitted free of cost to membership in the College Athletic Association.

All College property in the possession of the individual student, such as his room, furniture, books, apparatus and military equipment will be charged against him, and the parent or guardian must assume responsibility for its return without abuse to the proper department at the end of each scholastic year, at which time the account will be cancelled. If abused, the cost of replacing or repairing the abused article must be paid by the parent or guardian.

Damage to College property in public places in the building and on the grounds by the student will be charged to the whole student body, pro rata, unless the offender is known. In such cases, the whole expense of repairing or replacing the damaged property will

be charged to the parent or guardian of the offending party. The matriculation of a student is evidence of the acceptance of this regulation.

UNIFORM.

The uniform is the same as worn at the United States Military Academy at West Point. It is made of the best Charlottesville gray cloth, under a special contract with one of the best Military Equipment Houses in the United States. This uniform is furnished at a very low price.

The uniform consists of gray fatigue blouse, gray fatigue trousers and gray fatigue cap, with white waist belt and white cross belt for all military formations. The cost of this uniform and equipment last year was:

Fatigue blouse	$ 7.95
Fatigue trousers	5.45
Fatigue cap	1.60
White waist belt with plate	.50
White cross belt and equipment	.50
Total	$16.00

Measures for this uniform are taken as soon as the student arrives at College, and fit is guaranteed.

Deposits for this uniform must be made with the Treasurer when the measure is taken, as no uniform will be ordered until the money has been deposited for the same. No uniform is paid for until it is approved by the Commandant of Cadets.

In summer the field service uniform is worn, consisting of drab shirt and trousers, canvas leggins, regulation campaign hat, black leather waist belt and black tie.

The cost of the summer outfit is:

2 olive drab, wool shirts at $1.50	$ 3.00
1 campaign hat	.95
1 pair canvas leggins	.85
1 black leather belt	.20
1 black four-in-hand tie	.20
2 pair of white duck trousers at $1.25	2.50
1 pair olive drab trousers	2.30
Total for summer uniform	$10.00

Deposits for the summer uniform must be made immediately after the first of January.

The gray military overcoat has been adopted by the College as the regulation overcoat. It is made of the same material as the uniform and is a warm and durable garment which will last for years. The purchase of the overcoat is optional, but it is advised that it be purchased, since no overcoat other than the gray may be worn with the uniform. The cost is $19.75.

White gloves, collars, etc., can be purchased at the stores near the College.

ARTICLES NECESSARY TO BE PROVIDED.

All students are required to provide themselves with the following articles, to be brought from home or purchased from the College Park stores on arrival:

1 dozen white standing collars.
6 pairs white gloves (uniform).
6 pairs white cuffs.
1 pair blankets (for single bed).
2 pairs sheets (for single bed).
4 pillow cases.
1 chair (uniform).
6 towels.
8 table napkins.
1 pillow.
1 mattress (uniform).
2 clothes bags (uniform).
1 broom.

All the articles marked (uniform) in the foregoing list can best be purchased after the student arrives at the College. The cost of the entire list should not be more than $15.00 for the year. This should be paid to the Treasurer on entrance, as the College has no fund from which it can make advances, and failure to comply with this requirement will subject the student to much inconvenience. Any unexpended balance will be returned promptly.

ACKNOWLEDGMENTS.

MEDALS.—The authorities of the Institution take this opportunity to express their appreciation of the courtesy of their friends in establishing the following, for competition:

William Pinkney Whyte Medal, for excellence in Oratory, offered by Hon. Isaac Lobe Straus, of Baltimore, Md.

Winfield Scott Schley prize, for excellence in Oratory, offered by B. H. Warner, Esq., of Kensington, Md.

James Douglas Goddard Memorial Medal, to student of Prince George's county making the highest average in studies, offered by his sister, Mrs. Annie K. Goddard James, of Washington, D. C.

STUDENT ORGANIZATIONS.

Students' clubs for religious, social, literary and athletic purposes are encouraged as a means of creating class and college pride, and developing an *esprit de corps* among the students. Each class has its own organization, in which matters relating to the class are discussed and directed. Officers are elected and the unity of the class preserved. This has been found to be a decided aid to discipline and tends to raise the standard of student honor.

YOUNG MEN'S CHRISTIAN ASSOCIATION.

Much encouraging work has been done by this organization during the past year, and gratifying interest has been shown in the meetings.

OFFICERS.

President, J. R. Reichard.
Vice-President, E. P. Williams.
Secretary, E. V. Benson.
Treasurer, W. E. Harrison.

LITERARY SOCIETIES.

MORRILL SOCIETY.

NEW MERCER SOCIETY.

These societies are invaluable adjuncts to college work. Through them a knowledge of parliamentary law is gained, as well as a readiness of expression and activity in thought, qualities particularly valuable to the American citizen.

The literary society work is under the general supervision of the Professor of Oratory, who is always ready to advise with the members in matters of parliamentary law and train them in the delivery of their orations and debates.

ENGINEERING SOCIETY.

One of the newest and most beneficial additions to the M. A. C. is the Engineering Society. Organized in September, 1912, it proved an immediate success, gratifying a long-felt and much-needed want on the part of the engineering students. The general object of the Society is the cultivation of a more active interest in engineering work, while its special aim is to give the student the opportunity to discuss the line of work in which he is interested and to become more accustomed to presenting his ideas. Inasmuch as the Society takes in all members of the Senior and Junior Classes in the Civil, Electrical and Mechanical Engineering Courses, a larger opportunity for acquiring technical knowledge outside of one's own course is offered.

The Society meets twice a month on alternate Thursdays. Papers are presented at alternate meetings by Engineers in practice and by the students themselves.

OFFICERS.

President, R. S. Healy.
Vice-President, E. P. Williams.
Secretary, M. E. Davis.
Treasurer, H. S. Ford.

THE LIEBIG CHEMICAL SOCIETY.

The Liebig Chemical Society was organized to satisfy a much-felt need. The object of the Society is to have the various chemical problems of the day, discussed by men who have specialized in the different branches of Chemistry, or by the members themselves. This tends to develop a keener interest in Chemistry, and also to broaden the student along Chemical lines.

Membership in this Society is open to all members of the Sophomore, Junior and Senior Classes, who are specializing in Chemistry.

OFFICERS.

President, William K. Robinson.
Secretary, Alfred Nisbet.

ROSSBOURG CLUB.

The social man is a necessity—hence this organization is encouraged and supported by the President and Faculty. The entertainments have been marked by a spirit which emphasizes the wisdom of its organization and justifies its encouragement.

OFFICERS.

President, M. E. Davis.
Vice-President, W. K. Robinson.
Secretary, C. M. White.
Treasurer, H. S. Koehler.

REVEILLE.

The "Reveille" is the College annual, edited entirely by the Senior Class. Fifteen editions of the "Reveille" have appeared, and each has been characterized by a gratifying improvement in the standard both of originality and expression.

EDITORIAL STAFF.

Editor-in-Chief, J. R. Reichard.
Associate Editors, E. E. Powell, W. K. Robinson, M. E. Davis, R. S. Healy.
Business Manager, S. Blankman.
Associate Business Managers, G. P. Trax, A. Nesbit, L. Blankman.

DEPARTMENT EDITORS.

Art, N. A. Le Savoy.
Class History, G. B. Morse.

THE TRIANGLE.

The "Triangle" is the College newspaper, and is published every two weeks during the scholastic year.

EDITORIAL STAFF.

Editor-in-Chief, M. E. Davis.
Junior Editors, J. B. Gray, H. S. Ford, D. L. Johnson.
Sophomore Editor, W. E. Harrison.
Freshman Editor, A. Reisinger.
Alumni Editor, E. N. Cory.
Business Manager, R. W. Truitt.
Assistant Business Managers, A. M. Todd, R. T. Gray.
Alumni Manager, L. B. Broughton.

STUDENT ATHLETIC ASSOCIATION.

Membership in the Athletic Association is open to all students free of charge.

The object of the Association is to foster athletic spirit, prevent indiscretion in athletic matters and co-operate with the Athletic Council in the general management of all athletic affairs.

OFFICERS.

President, C. M. White.
Secretary, R. C. Williams.

ATHLETIC COUNCIL.

The Athletic Council, in conjunction with the Student Athletic Association, manages all athletic affairs. It consists of three members of the Faculty, appointed by the President, and five students, namely, the managers of the football, baseball, track and tennis teams, and the President of the Athletic Association.

THE ORATORICAL ASSOCIATION OF MARYLAND COLLEGES.

The Maryland Agricultural College is a member of this Association, which is composed of St. John's College, Washington College, Western Maryland College and Maryland Agricultural College. Contests are held annually at these colleges in rotation, and a marked improvement is to be observed as a result of its organization.

THE ALUMNI ASSOCIATION.

An Institution can largely be judged by the character of its Alumni. Their success in life is the Institution's pride. The work of the Alumni of a College is its greatest asset. M. A. C. is fortunate in having among its Alumni men who have attained notable achievements in Agriculture, Engineering and Science. M. A. C. Alumni can be found holding prominent positions in all walks of life.

While for many years the Alumni, through their Association, have taken an active interest in the growth and development of the Institution, it is pleasing to state that this interest has been greatly increased during the past two or three years and since the recent great fire at the College, the Association has taken active steps to

aid the Board of Trustees and Faculty in the rehabilitation of the College.

One of the cherished hopes of the Association, that of having direct representation on the Board of Trustees, has been attained in the appointment of the President of the Alumni Association, by the Governor of the State, as a Trustee of the College. The attainment of this end will naturally greatly increase the enthusiasm and interest of the members of the Alumni in co-operating more closely than ever with the College authorities in increasing the scope and usefulness of the Institution.

The Alumni Association continues to offer medals for worthy students in the several collegiate departments, debating societies, etc.

The members have also greatly aided in the development of athletics and especially in conducting the joint athletic meets, which were held at the College during the last two years.

The Alumni also co-operate in the publishing of the Triangle.

The officers of the Alumni Association for the present year are: President, Henry Holzapfel, Jr., '93; Vice-President, Fabian Posey, '97; Secretary-Treasurer, T. B. Symons, '02; Executive Committee, members at large, R. H. Dixon, '06; Wellstead White, '05; Triangle Staff—Alumni Editor, E. N. Cory, '09; Business Manager, L. B. Broughton, '08.

Graduates and members of the Association are requested to keep the Secretary-Treasurer, T. B. Symons, College Park, Md., informed of any change in their address. Any information concerning the older graduates which will enable the officers to locate and communicate with them will facilitate their efforts and will tend to further the success of the Association.

CANDIDATES FOR DEGREES TO BE CONFERRED IN 1913, WITH SUBJECTS OF THESIS.

BACHELOR OF SCIENCE IN AGRICULTURE.

HENRY PECK AMES, COLLEGE PARK, MD.
"The Deterrent Effect of Lime Water in Retarding the Growth of Mold on Germinating Legume and Grass Seeds."

NATHANIEL A. LE SAVOY, NEW YORK CITY.
"The Influence of Breed Upon the Milk and Butter of Cattle."

HUGH S. KOEHLER, BLAIRSVILLE, PENNA.
"Investigation of the Angora Goat Industry of Maryland."

IRVING LOUIS TOWERS, CHEVY CHASE, MD.
"Some Studies of the Causes of Leg Weakness in Chickens."

BACHELOR OF SCIENCE IN HORTICULTURE.

JOHN ROWLAND REICHARD, FAIRPLAY, MD.
"Natural versus Artificial Pollination of Tomatoes in the Greenhouse."

BACHELOR OF SCIENCE IN BIOLOGY.

WILLIAM HENRY WHITE, COLLEGE PARK, MD.
"Fumigation with Hydrocyanic Gas with Special Reference to the Maximum and Minimum Dosage for Numerous Greenhouse Crops."

BACHELOR OF SCIENCE IN CHEMISTRY.

ALFRED NISBET, BALTIMORE, MD.
"Discussion of Methods of Sugar Analysis."

MERCER BROWN MAYFIELD, JR., WASHINGTON, D. C.

"A Study of the Acid Contents of Corn with a View to a New Method of Grading the Same."

WILLIAM KEAN ROBINSON, FRANKTOWN, VA.

"Recovery of Potash from Feldspar."

BACHELOR OF SCIENCE IN GENERAL.

GEORGE BYRON MORSE, JR., RIVERDALE, MD.

"Development of International Arbitration in the Past One Hundred Years."

BACHELOR OF SCIENCE IN CIVIL ENGINEERING.

LEO BLANKMAN, BALTIMORE, MD.

SAMUEL WOLF BLANKMAN, BALTIMORE, MD.

"Design of a 500,000 Gallon Water Tank and Warren Truss Highway Bridge."

MILTON ERNEST DAVIS, BALTIMORE, MD.

"Design of Two Modern Fireproof Buildings Connected by a Concrete Arch Bridge."

WILLIAM B. HULL, WESTMINSTER, MD.

EZEKIEL JOHN MERRICK, JR., SUDLERSVILLE, MD.

ERNEST TRIMBLE, MT. SAVAGE, MD.

"Location of a Spur Track from Lakeland to College Buildings."

EDWIN EMERSON POWELL, BALTIMORE, MD.

"Construction of Broken Stone Roads."

GEORGE PERCIVAL TRAX, EASTON, MD.

"The Determination of a Meridian by Various Methods."

BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING.

RALPH SCOTT HEALY, NEW YORK CITY.

"Efficiency and Life Tests on Carbon, Tantalum and Tungsten Lamps."

BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING.

CHARLES M'ELROY WHITE, LONACONING, MD.

"Some Engineering Data."

Candidates for Certificates in 1913—Two-Year Courses.

AGRICULTURE.

Emory Wilhide Benson, Cockeysville, Md.
Gladen Davis, Rocks, Md.
Harry S. Dearstyne, Hawthorne, Conn.
Albert Earl Irving, Baltimore, Md.
James Phillip Hanson Mason, Accotink, Va.
Harry Walter Townshend, Mitchellsville, Md.
Henry Whitmore White, Dickerson, Md.

HORTICULTURE.

Alexander Morris Todd, Fort Howard, Md.
Lea Gilpin Willson, Silver Spring, Md.

Medals and Prizes Awarded June 12th, 1912.

For excellence in the Agricultural Course; offered by the Alumni Association:

W. B. KEMP, OF MARYLAND.

Honorable Mention, F. E. ANDERSON, OF MARYLAND.

For excellence in the Horticultural Course; offered by the College:

F. W. ALLEN, OF MARYLAND.

For excellence in the Biological Course; offered by the College:

H. C. F. GILL, OF BALTIMORE CITY.

For excellence in the Chemical Course; offered by the College:

S. C. DENNIS, OF MARYLAND.

For excellence in the Civil Engineering Course; offered by the College:

W. S. GRACE, OF MARYLAND.

Honorable Mention, M. H. MELVIN, OF MARYLAND.

For Excellence in Electrical Engineering Course; offered by the College:

J. G. O'CONOR, OF MARYLAND.

For excellence in the Mechanical Engineering Course; offered by the Alumni Association:

N. R. WARTHEN, OF MARYLAND.

For excellence in Debate; offered by the Alumni Association:

W. B. KEMP, OF MARYLAND.

The William Pinkney Whyte Medal, for excellence in Oratory; offered by Isaac Lobe Straus, Esq.:

N. L. CLARK, OF MARYLAND.

The Goddard Medal, for excellence in scholarship and moral character; offered by Mrs. Annie K. Goddard James:

N. L. CLARK, OF MARYLAND.

MILITARY ORGANIZATION.

COMMANDANT OF CADETS.

Major John A. Dapray.....United States Army.

BANDMASTER AND ARMORER.

Charles L. Strohm.....Late Chief Trumpeter, U. S. Cavalry Band.

BATTALION STAFF.

H. S. Koehler.....Cadet Major.
M. B. Mayfield.....First Lieutenant and Adjutant.
H. P. Ames.....First Lieutenant and Quartermaster.
R. T. Gray .....Sergeant Major.
J. B. Gray.....Color Sergeant.

CADET BAND ORGANIZATION.

Charles L. Strohm, Bandmaster.

M. B. Mayfield.....Adjutant Commanding.
E. J. Merrick.....Principal Musician.
G. B. Morse.....Drum Major.
H. A. Rasmussen.....Sergeant.
H. U. Deely.....Sergeant.
P. A. Hauver.....Corporal.
C. H. Buchwald.....Corporal.
E. M. Roberts.....Corporal.

COMPANY OFFICERS AND NON-COMMISSION OFFICERS.

Company "A."	Company "B."	Company "C."
CAPTAINS.		
M. E. Davis.	W. K. Robinson.	C. M. White.
FIRST LIEUTENANTS.		
E. E. Powell.	J. R. Reichard.	W. B. Hull.
SECOND LIEUTENANTS.		
I. L. Towers.	S. Blankman.	N. A. Le Savoy.
R. S. Healy.	W. H. White.	E. Trimble.
		L. Blankman.
FIRST SERGEANTS.		
D. L. Johnson.	R. C. Williams.	E. P. Williams.
QUARTERMASTER SERGEANTS.		
W. S. Fletcher.	J. P. Mason.	H. S. Ford.
SERGEANTS.		
A. White.	A. M. Todd.	F. H. O'Neill.
W. H. White.	L. R. Rogers.	J. W. Green.

Company "A."	Company "B."	Company "C."
	CORPORALS.	
R. Carter.	C. E. Robinson.	L. Pennington.
P. N. Peter.	E. H. Pierson.	F. J. McKenna.
C. T. Cockey.	R. Dale.	G. S. Frazee.
J. B, Bowland.	T. D. Gray.	O. Carpenter.
R. J. McCutcheon.	M. Levin.	J. H. Knode.
	LANCE CORPORALS.	
		C. F. Hunteman.
		M. A. Thorne.
	FIELD MUSIC.	
H. A. Clark.	J. H. Brandt.	S. C. Wallace.
	B. Dubel.	H. Freundlich.

ROSTER OF MATRICULATES.

SESSION 1912-13.

NAME.	POST OFFICE.	COUNTY.
GRADUATE STUDENTS.		
Adams, A. C.,	College Park,	Prince George.
Allison, J. F.,	Philadelphia,	*Pennsylvania.*
Cory, E. N.,	College Park,	Prince George.
Gardner, C. H.,	Baltimore,	*Baltimore City.*
Hayman, E. T.,	Baltimore,	*Baltimore City.*
Jarrell, T. D.,	College Park,	Prince George.
Lowrey, S. L.,	Baltimore,	*Baltimore City.*
Mahoney, W. T.,	Jefferson,	Frederick.
Reeder, W. C.,	Philadelphia,	*Pennsylvania.*
Remsburg, C. G.,	Knoxville,	Frederick.
Ridgway, C. S.,	Auburn,	*Alabama.*
Sasscer, E. R.,	Washington,	*District of Columbia.*
Williar, H. D.,	Baltimore,	*Baltimore City.*
SENIOR CLASS.		
Ames, H. P.,	College Park,	Prince George.
Blankman, L.,	Baltimore,	*Baltimore City.*
Blankman, S.,	Baltimore,	*Baltimore City.*
Davis, M. E.,	Baltimore,	*Baltimore City.*
Healy, R. S.,	New York,	*New York City.*
Hull, W. B.,	Westminster,	Carroll.
Koehler, H. S.,	Blairsville,	*Pennsylvania.*
Le Savoy, N. A.,	New York,	*New York City.*
Mayfield, M. B., Jr.,	Washington,	*District of Columbia.*
Merrick, E. J., Jr.,	Sudlersville,	Queen Anne.
Morse, G. B., Jr.,	Riverdale,	Prince George.
Nisbet, A.,	Baltimore,	*Baltimore City.*
Powell, E. E.,	Baltimore,	*Baltimore City.*
Reichard, J. R.,	Fairplay,	Washington.
Robinson, W. K.,	Franktown,	*Virginia.*
Towers, I. L.,	Chevy Chase,	Montgomery.
Trax, G. P.,	Easton,	Talbot.
Trimble, E.,	Mt. Savage,	Allegany.
White, C. M.,	Lonaconing,	Allegany.
White, W. H.,	College Park,	Prince George.
JUNIOR CLASS.		
Coster, J. B.,	Coster,	Calvert.
Deeley, H. U.,	Baltimore,	*Baltimore City.*
Fletcher, W. T.,	Alexandria,	*Virginia.*
Ford, H. S.,	Fairmount,	Somerset.
Gray, J. B., Jr.,	Prince Frederick,	Calvert.
Gray, R. T.,	Grayton,	Charles.
Green, J. W.,	Westover,	Somerset.
Hoffecker, F. S.,	Perryville,	Cecil.

NAME.	POST OFFICE.	COUNTY.
JOHNSON, D. L.,	Frederick.	Frederick.
LEDNUM, R. C.,	Preston.	Caroline.
O'NEILL, F. H.,	Riverdale,	Prince George.
PARKS, G. T.,	Timonium,	Baltimore.
RASMUSSEN, H. A.,	Baltimore,	*Baltimore City.*
ROGERS, L. R.,	Baltimore,	*Baltimore City.*
TRUITT, R. V.,	Girdletree,	Worcester.
WHITE, A.,	College Park,	Prince George.
WILLIAMS, E. P.,	Woolford,	Dorchester.
WILLIAMS, R. C.,	Doncaster,	Charles.

SOPHOMORE CLASS.

ANDRIOPULOS, L. D.,	Hyattsville,	Prince George.
ARMSTRONG, E. W.,	Magnolia,	Harford.
BLUNDON, J. P.,	Riverdale,	Prince George.
BOWLAND, J. E.,	Kingston,	Somerset.
BROWN, R. S.,	Gapland,	Washington.
BUCHWALD, C. H.,	Baltimore,	*Baltimore City.*
CARPENTER, O.,	Plum Point,	Calvert.
CARTER, A. R.,	Annapolis,	Anne Arundel.
CLARK, H.,	Roland Park,	Baltimore.
COCKEY, C. T.,	Pikesville,	Baltimore.
DALE, R.,	Princess Anne,	Somerset.
FIROR, G. H.,	Thurmont,	Frederick.
FORD, B. A.,	Roland Park,	Baltimore.
FRAZEE, G. S.,	Oldtown,	Allegany.
GIBSON, A. M.,	Baltimore,	*Baltimore City.*
GRAY, T. D.,	Grayton,	Charles.
HALL, W. E.,	Baltimore,	*Baltimore City.*
HARRISON, W. E.,	Sparrows Point,	Baltimore.
HAUVER, P. A.,	Smithsburg,	Washington.
KEEFAUVER, L. S.,	Berwyn,	Prince George.
KELLY, W. R.,	Baltimore,	*Baltimore City.*
KISLIUK, M.,	Washington,	*District of Columbia.*
KNODE, H.,	Hagerstown,	Washington.
LEVIN, M.,	Baltimore,	*Baltimore City.*
MCCUTCHEON, R. J.,	Braddock Heights,	Frederick.
MCKENNA, F. J.,	Woonsocket,	*Rhode Island.*
MASSEY, H.,	Massey,	Kent.
MONTELL, E. W.,	Catonsville,	Baltimore.
MYERS, A. W.,	Patapsco.	Carroll.
PENNINGTON, L. R.,	Havre de Grace,	Harford.
PENNINGTON, V. P.,	Millington,	Kent.
PERKINS, W. T.,	Springfield,	Prince George.
PETER, P. N.,	Kensington.	Montgomery.
PIERSON, E. H.,	Washington,	*District of Columbia.*
ROBINSON, C. E.,	Franktown,	*Virginia.*
ROBERTS, E. M.,	Oxford.	*Pennsylvania.*
ROHN, M. E.,	Baltimore,	*Baltimore City.*
SCOTT, R. C.,	Baltimore,	*Baltimore City.*
STEVENS, W. E.,	Stevensville,	Queen Anne's.
TODD, R. N.,	Hurlock,	Dorchester.
TULL, J. J.,	Crisfield,	Somerset.

NAME.	POST OFFICE.	COUNTY.
WALLIS, E. C.,	Riverdale,	Prince George.
WOODLAND, A. R.,	Crisfield,	Somerset.
WRIGHT, F. W.,	Forest Glen,	Montgomery.
	FRESHMAN CLASS.	
AITCHESON, W. J.,	Burtonsville,	Montgomery.
ALTIERA, A. F. J.,		
BOWLING, J. E.,	Berwyn,	Prince George.
CAMPBELL, W. H.,	Kingsville,	*Ohio.*
CHISOLM, J. J.,	Washington,	*District of Columbia.*
CLAYTON, W. G.,	Chesapeake City,	Cecil.
COLBORN, C. G.,	Baltimore,	*Baltimore City.*
DOUB, V. W.,	Middletown,	Frederick.
EDDY, A. E.,	Berwyn,	Prince George.
ERDMAN, L. W.,	Baltimore,	*Baltimore City.*
FALLOWFIELD, F. P.,	Baltimore,	*Baltimore City.*
GATES, H. B.,	Takoma Park,	Prince George.
GOLDBERG, M. J.,	New York,	*New York City.*
GRACE, K.,	Easton,	Talbot.
GRAY, G. B. D.,	Prince Frederick,	Calvert.
HARP, J. R.,	Middletown,	Frederick,
HATCH, C. B.,	Washington,	*District of Columbia.*
HEBBEL, E.,	Baltimore,	*Baltimore City.*
HEBBEL, J.,	Baltimore,	*Baltimore City.*
HENRY, I. H.,	Easton,	Talbot.
HINDMAN, E. R.,	Washington,	*District of Columbia.*
JOY, G. W., JR.,	Leonardtown,	St. Mary's.
KNATZ, E. G., JR.,	Owings Mills,	Baltimore.
KNODE, K. F.,	Hagerstown,	Washington.
KOHN, M. C.,	New York,	*New York City.*
LAIRD, C. K.,	Philadelphia,	*Pennsylvania.*
LEPPER, M.,	Hyattsville,	Prince George.
LOOMIS, L. T.,	Mt. Rainier,	Prince George.
MCBURNEY, M. W.,	Baltimore,	*Baltimore City.*
MCLEAN, W.,	Owings Mills,	Baltimore.
MILLER, J. H.,	Baltimore,	*Baltimore City.*
MORRIS, P.,	Faulkner,	Charles.
MORRIS, W. G.,	Washington,	*District of Columbia.*
REISINGER, A.,	Rockville,	Montgomery.
RUFF, S. W.,	Roslyn,	Baltimore.
SHARP, G. B.,	Glenelg,	Howard.
SMITH, H.,	Arlington,	Baltimore.
SMITH. K. E.,	Washington,	*District of Columbia.*
STEINMETZ, F. W.,	Roland Park,	Baltimore.
STERLING, J. C.,	Crisfield,	Somerset.
SUNSTONE, J. T.,	Baltimore,	*Baltimore City.*
TAYLOR, E. A.,	Stockton,	Worcester.
TAYMAN, G. S.,	Westwood,	Prince George.
TOWLES, R. C.,	College Park,	Prince George.
VALLIANT, E. S.,	Laurel,	*Delaware.*
WALKER, R. R.,	Boston,	*Massachusetts.*
WHITE, R.,	College Park,	Prince George.
WILSON, L. C.,	Nottingham,	*Pennsylvania.*

SUB-FRESHMAN CLASS.

NAME.	POST OFFICE.	COUNTY.
Arnold, T.,	Hyattsville,	Prince George.
Bandes, W.,	Brooklyn,	*New York.*
Bacon, C. H.,	Silver Spring,	Washington.
Caldwell, J. S., Jr.,	Baltimore,	*Baltimore City.*
Colburn, W. T.,	Baltimore,	*Baltimore City.*
Collins, E. C.,	Washington,	*District of Columbia.*
Davenport, L.,	Washington,	*District of Columbia.*
Deal, J. E.,	Cumberland,	Allegany.
Dubel, R.,	Baltimore,	*Baltimore City.*
Durrety, L. M.,	Guantanamo,	*Cuba.*
Fatt, V. L.,	Washington,	*District of Columbia.*
Foxwell, S. T.,	Leonardtown,	St. Mary's.
France, R.,	Knoxville,	*Tennessee.*
Freundlich, H.,	Baltimore,	*Baltimore City.*
Gilpin, W. F.,	Lanham,	Prince George.
Greene, L. S.,	Washington City,	*District of Columbia.*
Howarth, J. A.,	Philadelphia,	*Pennsylvania.*
Howe, C.,	Washington,	*District of Columbia.*
Hunteman, C. F.,	Washington,	*District of Columbia.*
Ilgenfritz, C. W.,	Lutherville,	Baltimore.
Johnson, J. M.,	Cambridge,	Dorchester.
Keyworth, W. G.	Hyattsville,	Prince George.
Langsdale, S. A.,	Easton,	Talbot
Mann, J. W.,	Philadelphia,	*Pennsylvania.*
Medinger, A. C.,	Balboa,	*Canal Zone.*
Miller, J. F.,	Chillum,	Prince George.
Miller, W. L.,	Cumberland,	Allegany.
Senart, B. F.,	Washington,	*District of Columbia.*
Stephenson, F. T.,	Hyattsville,	Prince George.
Thomsen, F. L.,	Berwyn,	Prince George.
Thorne, M. A.,	Lanham,	Prince George.
Townsend, W. D.,	Oakland,	Garrett.
Wallace, S. C.,	Deal's Island,	Somerset.
Waxter, W. D.,	Baltimore,	*Baltimore City.*
Williams, O. V.,	Nanticoke,	Wicomico.

PREPARATORY CLASS.

Ambrose, Clayton,	St. Mary's,	St. Mary's.
Blanco, R.,	Cochabamba,	*Bolivia.*
Brandt, J. H.,	Windsor Hills,	Baltimore.
Brooks, J.,	Hyattsville,	Prince George.
Brown, W. E.,	Hamilton,	*Bermuda.*
Clark, J. T.,	Washington,	*District of Columbia.*
Cole, L. T.,	Denton,	Caroline.
Cunha, Cincinato,	Sao Paulo,	*Brazil.*
Davenport, L.,	Washington,	*District of Columbia.*
Gowler, L. M.,	Washington,	*District of Columbia.*
Ginder, L.,	Hyattsville,	Prince George.
Gude, E. F.,	Washington,	*District of Columbia.*
Magruder, F.,	Hyattsville,	Prince George.
Mallery J. P.,	Lanham,	Prince George.

NAME.	POST OFFICE.	COUNTY.
Mills, James E.,	Hyattsville,	Prince George.
Moraes, Josi,	Sao Paulo,	*Brazil.*
Muller, P. H.,	Washington,	*District of Columbia.*
Posey, W. B.,	Cross Roads,	Charles.
Pywell, E. E.,	College Park,	Prince George.
Robinette, D.,	Washington,	*District of Columbia.*
Rook, T.,	College Park,	Prince George.
Shepherd, D. H.,	Bynum,	Harford.
Stabler, A. L.,	Sandy Spring,	Montgomery.
Vincentis, L. De,	Baltimore,	*Baltimore City.*

SECOND YEAR AGRICULTURAL.

Benson, E. W.,	Cockeysville,	Baltimore.
Davis, G. A.,	Rocks,	Harford.
Dearstyne, H. S.,	Hawthorne,	*Connecticut.*
Irving, A. E.,	Baltimore,	*Baltimore City.*
Mason, J. P. H., Jr.,	Accotink,	*Virginia.*
Merritt, G. A.,	Sparrows Point,	Baltimore.
Moore, G. C.,	Queen Anne,	Talbot.
Townshend, H. W.,	Mitchellsville,	Prince George.
White, H. W.,	Dickerson,	Montgomery.

SECOND YEAR HORTICULTURAL.

Todd, A. M.,	Fort Howard,	Baltimore.
Willson, L. G.,	Silver Spring,	Montgomery.

FIRST YEAR AGRICULTURAL AND HORTICULTURAL.

Baldwin, H. S.,	Baldwin,	Baldwin.
Basset, H. W.,	Washington,	*District of Columbia.*
Bond, B.,	Tompkinsville,	Charles.
Bright, C.,	Stevensville,	Queen Anne.
Burlingham, P. A.,	Baltimore,	*Baltimore City.*
Cole K. C.,	Port Chester,	*New York.*
Cransford, J. T.,	Solomons,	Calvert.
Davis, G. A.,	Rocks,	Harford.
Day, S. E.,	Baltimore,	*Baltimore City.*
Drake, L. R.,	Royal Oak,	Talbot.
Dinger, J. T.,	Washington,	*District of Columbia.*
Dunnington, F.,	Washington,	*District of Columbia.*
Garey, W. M.,	Denton,	Caroline.
Hoffman, C. F.,	Hagerstown,	Washington.
James, C. G.,	Easton,	Talbot.
Johnston, N.,	Baltimore,	*Baltimore City.*
Long, T. B.,	Crisfield,	Somerset.
Maus, C. V.,	Westminster,	Carroll.
Metcalfe, G. E.,	Union Bridge,	Carroll.
Parran, B.,	St. Leonards,	Calvert.
Purkins, G. M.,	Amburg,	*North Carolina.*
Radebaugh, A. D.,	Bynum,	Harford.
Rengel, F.,	Oruro,	*Bolivia.*
Sherman, A. M.,	Riverdale,	Prince George.
Selby, C. M.,	Amburg,	*Virginia.*

NAME.	POST OFFICE.	COUNTY.
Shipley, H. B.,	College Park,	Prince George.
Skinner, W. H.,	Mt. Washington,	Baltimore.
Smoot, L. B.,	Kensington,	Montgomery.
Stanton, W. C.,	Grantsville,	Garrett.
Stinson, W. H.,	Glenwood,	Howard.
Xavier, P.,	Sao Paulo,	*Brazil.*

STUDENTS IN THE SHORT WINTER COURSES.

Ager, C. B.,	Hyattsville,	Prince George.
Ager, Raymond E.,	Hyattsville,	Prince George.
Arrowsmith, Miss L. O.,	Beltsville,	Prince George.
Balderston, Levi H.,	Colora,	Cecil.
Balderston, Lloyd,	Colora,	Cecil.
Beall, Miss M. C.,	Beltsville,	Prince George.
Beall, Mrs. S. W.,	Beltsville,	Prince George.
Bird, Mrs. A. C.,	Laurel,	Prince George.
Bisell, Miss E. W.,	Beltsville,	Prince George.
Bohannon, Mrs. C. S.,	Overlea,	Baltimore.
Bladen, Mrs. Geo. W.	College Park,	Prince George.
Bower, R. F.,	Hagerstown,	Washington.
Boyer, W. Day,	Damascus,	Montgomery.
Bryan, Willard V.,	Queenstown,	Queen Anne.
Bye, Samuel G.,	Lewisville,	*Pennsylvania.*
Carroll, Charles,	Ellicott City,	Howard.
Carter, Miss M. D.,	Hyattsville,	Prince George.
Caulk, Wm. W.,	Wyoming,	*Delaware.*
Chaffey, S. R.,	Marion Station,	Somerset.
Chaflin, Warren E.,	College Park,	Prince George.
Clark, Mrs. M. M.,	Hyattsville,	Prince George.
Clark, Mrs. O. J.,	Hyattsville,	Prince George.
Clendaniel, Chas. E.	Kennedyville,	Kent.
Cone, R. L.,	Hyattsville,	Prince George.
Cook, Raymond,	Federalsburg,	Caroline.
Cornelius, Mrs. F.,	Worton,	Kent.
Cox, Mrs. E. J.,	Severna Park,	Anne Arundel.
Dawson, Howard H.,	Glyndon,	Baltimore.
Detrow, S.,	Hagerstown,	Washington.
Devitt, Christ. T.,	Hoboken,	*New Jersey.*
Dixon, J. W.,	Hanover,	*Virginia.*
Earley, H. R.,	Sharpsburg,	Washington.
Ford, B. A.,	College Park,	Prince George.
Galbreath, J. R.,	Street,	Harford.
Galbreath, S. W.,	Rocks,	Harford.
Gaither, W. C.,	Ellicott City,	Howard.
Garey, William W.,	Denton,	Caroline.
Gilkerson, R. W.,	Romney,	*West Virginia.*
Gadey, Geo. A.,	Berwyn,	Prince George.
Goodman, Roy,	Kennedyville,	Kent.
Gregory, E. Van,	St. Mary's,	St. Mary's.
Gude, Alex.,	Hyattsville,	Prince George.
Hall, James M.,	Hyattsville,	Prince George.
Hamm, Mrs. J. B.,	Washington,	*District of Columbia.*
Harris, A. L.,	Betterton,	Kent.

NAME.	POST OFFICE.	COUNTY.
Hart, De Witt C.,	Beltsville,	Prince George.
Hart, John A.,	Beltsville,	Prince George.
Hart, Miss J. J.,	Beltsville,	Prince George.
Hart, Mrs. J. T.,	Beltsville,	Prince George.
Harvey, Alex., Jr.,	Baltimore,	*Baltimore City.*
Heitmuller, B. C.,	Hyattsville,	Prince George.
Highbarger, Dr. J. T.,	Hagerstown,	Washington.
Hoffman, Calvin,	Hagerstown,	Washington.
Hughes, B. C.,	Rockville,	Montgomery.
Hungerford, E. W.,	Marshall Hall,	Charles.
Jackson, J.,		
Johnson, R.,		
Knowles, J. A.,	Riverdale,	Prince George.
Knowles, J. B.,	Bowie,	Prince George.
Kundahl, G. G.,	St. Mary's,	St. Mary's.
Kundahl, O. C.,	Palmer's,	St. Mary's.
Lane, Gilbert,	Preston,	Caroline.
Lanhardt, Geo. H.,	Hyattsville,	Prince George.
Latrobe, Fred C.,	Baltimore,	*Baltimore City.*
Lavaggo, Eugene,	West Hoboken,	*New Jersey.*
Lawrence, C. H.,	Brentwood,	*District of Columbia.*
Lemon, H. C.,	Hyattsville,	Prince George.
Lewis, Mrs. H. E.,	Riverdale,	Prince George.
Long, J. M.,	Washington,	*District of Columbia.*
Mahoney, Thomas,	Mitchells,	*Virginia.*
Mannakee, Mrs. M. A.,	Silver Springs,	Montgomery.
McCanna, Francis J.,	Pittston,	*Pennsylvania.*
McCullen, John W.,	Hyattsville,	Prince George.
McKenney, Walter A.,	Walkersville,	Frederick.
Monroe, Mrs. John F.,	College Park,	Prince George.
Maubet, Edgar W.,	Catonsville,	Baltimore.
Munnickhuysen, W. B.,	Bel Air,	Harford.
Murray, C. D.,	Elkridge,	Howard.
Murray, J. D.,	Washington,	*District of Columbia.*
Norris, Chas. A.,	Edgewood,	Baltimore.
O'Keefe, Mrs. M.,	Hyattsville,	Prince George.
O'Neill, Mrs. T. F.,	Riverdale,	Prince George.
Parran, B.,	St. Leonards,	Calvert.
Pennington, W. E.,	Washington,	*District of Columbia.*
Pfluger, F. E.,	Hyattsville,	Prince George.
Phair, G. F.,	Spencerville,	Montgomery.
Phair, Mrs. G. F.,	Spencerville,	Montgomery.
Phelps, W. A.,	Monkton,	Baltimore.
Phelps, W. P.,	Bowie,	Prince George.
Powell, W. P.,	Hyattsville,	Prince George.
Priff, William,		
Putnam, Chas. N.,	Anacostia,	*District of Columbia.*
Putnam, C. St. C.,	Ellicott City,	Howard.
Ragan, Robt. H.,	Gatun,	*Panama.*
Reckford, E. F.,	Cockeysville,	Baltimore.
Reick, Harvey,	Preston,	Caroline.
Roby, Carl T.,	Silver Springs,	Montgomery.
Rook, Raymond,	College Park,	Prince George.

NAME.	POST OFFICE	COUNTY.
Rook, W. B.,	College Park,	Prince George.
Ruffner, Mrs. R. H.,	College Park,	Prince George.
Senfert, Geo.,	Fullerton,	Baltimore.
Sexton, R. M.,	Harper's Ferry,	*West Virginia.*
Shafer, A. R.,	Little Orleans,	Allegany.
Short, Luther,	Hillsboro,	Caroline.
Shown, Bradford,	Denton,	Caroline.
Skinner, W. H.,	Mt. Washington,	Baltimore.
Smith, R. H., Jr.,	Aberdeen,	Harford.
Smoot, L. R.,	Kensington,	Montgomery.
Stabler, August,	Brighton,	Montgomery.
Stewart, E. M.,	Hyattsville,	Prince George.
Stewart, Earl W.,	Hyattsville,	Prince George.
Stinson, W. H.,	Glenwood,	Howard.
Stevens, Waldo W.,		
Stubbs, R. H.,	Baltimore,	*Baltimore City.*
Sykes, G. H.,	Ellicott City,	Howard.
Tallant, R. K.,	Hancock,	Washington.
Todd, M. L.,	Galesville,	Anne Arundel.
Waller, M. D.,	Laurel,	*Delaware.*
Walpuskii, T.G., Jr.,	New York,	*New York City.*
Webb, Miss A.,	College Park,	Prince George.
Webb, Mrs. H.,	College Park,	Prince George.
White, Miss K.,	College Park,	Prince George.
Whiteford, H. C.,	Whiteford,	Harford.
Williams, Mrs. H.T.,	Worton,	Kent.
Winbigler, Mrs. A.C.,	Braddock Heights,	Frederick.
Wolfinger, D. W.,	Hagerstown,	Washington,
Woodville, Mrs. C.,	Berwyn,	Prince George.
Wright, Mrs. M.,	Riverdale,	Prince George.
Wright, William,	Preston,	Caroline.
Yeakle, Ira B.,	Baltimore,	*Baltimore City.*
Zentz, E. B.,	Thurmont,	Frederick.
Zentz, T. M.,	Thurmont,	Frederick.

SUMMARY OF STUDENTS.

Graduate	13
Senior	20
Junior	18
Sophomore	44
Freshman	48
Sub-Freshman	35
Preparatory	24
Second Year Agricultural	9
Second Year Horticultural	2
First Year Agricultural and Horticultural	31
Short Winter Courses	132
Total	376

LIST OF PRESIDENTS AT THE MARYLAND AGRICULTURAL COLLEGE.

1. Prof. Benjamin Hallowell,	President of the Faculty		..1859—1860
2. Rev. J. W. Scott,	"	"	..1860—1860
3. Prof. Colby,	"	"	..1860—1861
4. Prof. Henry Onderdonk,	"	"	..1861—1864
5. Prof. N. B. Worthington,	"	"	..1864—1867
6. Prof. C. L. C. Minor,	President of the College		..1867—1868
7. Admiral Franklin Buchanan,	"	"	..1868—1869
8. Prof. Samuel Regester,	"	"	..1869—1873
9. General Samuel Jones,	"	"	..1873—1875
10. Captain W. H. Parker,	"	"	..1875—1883
11. General Augustus Smith,	"	"	..1883—1887
12. Allen Dodge, Esq., Pro Tem.,	"	"	..1887—1888
13. Major Henry E. Alvord,	"	"	..1888—1892
14. R. W. Silvester, LL. D.,	"	"	..1892—1912
15. Thos. H. Spence, M. A., Acting	"	"	..1912—....

GRADUATES WITH DEGREES AND ADDRESSES.

The following members of the various graduating classes have been located. Any information leading to further additions, addresses and occupations of Alumni will be gratefully received.

CLASS OF '62.

*Franklin, J., B. S.
Sands, W. B., A. B., Lake Roland, Md.

CLASS OF '63.

*Calvert, C. B., A. B.
Todd, W. B., B. S.

CLASS OF '64.

Hall, D., A. M.

CLASS OF '66.

Hall, E. of B., A. B., Millersville, Md.
*Roberts, L., Ph. B.
Waters, F., A. B., West River, Md.

CLASS OF '71.

Soper, F. A., A. B., (M. A. '74), Supt. of Public Schools, Baltimore, Md.

CLASS OF '73.

*Henry R. S., A. B., (M. A. '75).
Miller, O., A. B., (M. A. '75).
Regester, J. A., A. B.
Worthington, D., A. B.
Worthington, W., A. B.

CLASS OF '74.

Coffren, J. H., B. S., (M. A. '77).
Davis, H. M., A. B., (M. A. '77), Poolesville, Md.
Griffith, L. A., A. B., (M. A. '77), Upper Marlboro, Md.
Norwood, F. C., A. B., (M. A. '77), Frederick, Md.

CLASS OF '75.

Gray, J. B., A. B., (M. A. '78), Prince Frederick, Md.
Hyde, J. F. B., A. B., 1803 Bolton St., Baltimore, Md.
Lerch, C. E., B. S., Lerch Bros., 110 Hanover St., Baltimore, Md.
Miller, L., B. S., El Paso, Texas.

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*Deceased.

CLASS OF '76.

*Blair, W. J., B. S., (M. S. '79).
Thomas, T. H., B. S., Maddox, Md.
*Worthington, J. L., B. S.
Preston, J. S., B. S., 815 N. Charles St., Baltimore, Md.

CLASS OF '77.

*Beall, R. R., B. S.
Emack, E. G., B. S., District Building, Washington, D. C.
*Thomas, G., B. S.
Truxton, S., B. S.

CLASS OF '78.

Thomas, W., B. S., Westminster, Carroll Co., Md.

CLASS OF '80.

Gale, H. E., A. B., 260 W. Hoffman St., Baltmore, Md.

CLASS OF '81.

Houston, T. T., A. B., Baltimore, Md.
Mercer, R. S., A. B.
Porter, W. R., A. B.
Rapley, R. R., B. S., 1931 Sixteenth St., N. W., Washington, D. C.
Thomas, W. H., A. B., Westminster, Md.
Wood, C. W., A. B.

CLASS OF '82.

Bowen, P. A., Jr., A. B., 1413 G St., N. W., Washington, D. C.
Freeland, H., A. B., Mutual, Md.
Saunders, C. A., A. B.
*Stonestreet, J. H., A. B.
Wenner, C., A. B.

CLASS OF '83.

Chew, R. B. B., A. B., 512 F St., N. W., Washington, D. C.
Kirby, W. A., A. B., Trappe, Md.
*Lakin, W. A., A. B.
Rapley, E. F., A. B., 628 Louisiana Ave. Washington, D. C.

CLASS OF '84.

Martin, F., B. S.
Lakin, W. T., A. B., Cumberland, Md.

CLASS OF '88.

Chambliss, S. M., A. B., News Building, Chattanooga, Tenn.
Hazen, M. C., B. S., City Surveyor, Washington, D. C.
Johnson, L. B., A. B., Morganza, Md.
*Sigler, W. A., B. S.
Smith, R. E., B. S., Ridgely, Md.
Tolson, A. C., A. B., Gunther Building, Baltimore, Md.
Weems, J. B., B. S.

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*Deceased.

CLASS OF '89.

Griffith, T. D., B. S., Redland, Md.
Lewis, G., B. S.
Pindell, R. M., B. S., Secretary Wilmington Board of Trade, Wilmington, Del.
*Saulsbury, N. R., B. S.
Witmer, F., B. S., Hagerstown, Md.

CLASS OF '90.

Calvert, R. C. M., B. S., Bangalore, India.
Keech, W. S., B. S., Maryland National Bank Building, Towson, Md.
Manning, C. C., B. S., 16 Avon St., Portland, Me.
*Niles, E. G., B. S.
Russell, R. L., B. S., Anadarko, Okla.
Soles, C. E., B. S., McKeesport, Pa.

CLASS OF '91.

*Branch, C., B. S.
*Langley, J. C., B. S.
Latimer, J. B., B. S., Broomes Island, Md.
*Penn, S., B. S.
Veitch, F. P., B. S., College Park, Md.

CLASS OF '92.

Besley, F. W., A. B., Johns Hopkins University, Baltimore, Md.
Brooks, J. D., A. B., Medical Dept., care War Dept., Washington, D. C.
Calvert, G. H., A. B., 425 D St., N. W., Washington, D. C.
Chew, F., B. S.
Childs, N., B. S., Millersville, Md.
Gambrill, S. W., B. S., Fidelity and Deposit Co., 502 Fidelity Bldg., Baltimore, Md.
Johnson, E. D., A. B., West Pittston, Pa.
Ray, J. E., A. B., Columbian Building, Washington, D. C.

CLASS OF '93.

Alvey, C., B. S., Hagerstown, Md.
Buckley, S. S., B. S., College Park, Md.
Graff, G. Y., B. S., 3323 Fourteenth St., N. E., Washington, D. C.
Holzapfel, H. H., Jr., B. S., Hagerstown, Md.
Lawson, J. W., B. S., Southern Railway, Washington, D. C.
Sherman, H. C., B. S., Columbia University, New York, N. Y.

CLASS OF '94.

Best, H., B. S., Birdsville, Md.
Bomberger, F. B., B. S., (M. A. '02), College Park, Md.
Brown, A. S., B. S., 1432 S St., N. W., Washington, D. C.
Cairnes, C. W., B. S., U. S. Revenue Cutter Service, Treasury Dept., Washington, D. C.

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*Deceased.

Chiswell, B. M., B. S., Florence Court, Washington, D. C.
Dent, H. M., B. S.
Foran, T. E., B. S., Port Deposit, Md.
Key, S., B. S., (M. S. '02), 1733 H St., N. W., Washington, D. C.
*Pue, R. R., B. S.
Sudler, M. T., B. S., (M. S. '02), University of Kansas, Lawrence, Kan.
Weimer, C. H., B. S., Shamokin, Pa.

CLASS OF '95.

Bannon, J. G., B. S.
Claggett, G. H., B. S., Upper Marlboro, Md.
Compton, B., B. S., Woodmont, Conn.
Crapster, W. B., B. S., 402 Sixth St., N. W., Washington, D. C.
Edelen, G. S., B. S., Central High School, Washington, D. C.
Graham, H. R., B. S., Chestertown, Md.
Harding, S. H., B. S., 1737 T. St., N. W., Washington, D. C.
Harrison, R. L., B. S., Geological Survey, Washington, D. C.
*Jones, H. C., B. S.
McCandlish, L., B. S., Reading, Pa.
McDonnell, C. C., B. S., Bureau of Chemistry, Washington, D. C.
Mulliken, C. S., B. S., Brookfield Center, Conn.
Skinner, W. W., B. S., Bureau of Chemistry, Washington, D. C.
Sliger, R. E., B. S., Oakland, Md.
Timanus, J. J., B. S., Towson, Md.
Wilson, G. W., Jr., B. S., Upper Marlboro, Md.

CLASS OF '96.

Anderson, J., Jr., B. S., Shreveport, La.
Beale, R. B., B. S., General Electric Co., Schenectady, N. Y.
Crapster, T. G., B. S., U. S. S. Itasca, Baltimore, Md.
Dirickson, C. W., B. S., Berlin, Md.
*Eversfield, D., A. B.
Heyser, H. H., A. B., Hagerstown, Md.
Laughlin, J. R., B. S., (M. S. '01, M. A. '02), Hagerstown, Md.
Rollins, W. T. S., B. S., Seat Pleasant, Md.
Walker, C. N., B. S., 218 F St., N. W., Washington, D. C.

CLASS OF '97.

Calvert, C. B., A. B., College Park, Md.
Cronmiller, J. D., A. B., Laurel, Md.
Gill, A. S., B. S., 215 St. Paul St., Baltimore, Md.
Gill, N. H., B. S., Glyndon, Md.
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B. W. ANSPON, B. S., (H. and F.),
Associate Professor of Floriculture and Landscape Gardening.

L. B. BROUGHTON, M. S.,
Associate Professor of Chemistry.

H. C. BYRD, B. S.,
Director of Physical Culture, Instructor in English.

LEROY L. BURRELL, B. S.,
Instructor in Small Fruits.

NATHAN REED WARTHEN, B. S.,
Instructor in Mechanical Engineering.

GROVER KINZY, B. S.,
Instructor in Agronomy.

G. P. SPRINGER, B. S.,
Instructor in Civil Engineering and Mathematics.

C. L. C. KAH, B. S.,
Instructor in Electrical Engineering and Physics.

M. M. HARGROVE, A. M.,
Instructor in Languages.

B. H. DARROW,
Secretary Young Men's Christian Association.

P. L. GOWEN, B. S.,
Instructor in Chemistry.

R. W. LAMSON, B. S.,
Instructor in Bacteriology.

OTHER OFFICERS.

HERSCHEL FORD, Ph. B.,
Registrar and Treasurer.

ALLEN GRIFFITH, M. D.,
Surgeon.

WIRT HARRISON,
Clerk to Treasurer.

MRS M. T. MOORE,
Matron in Domestic Department.

A. L. PERRIE,
Stenographer.

C. L. STROHM,
Armorer, Band Master and Clerk to the Military Department.

STATE WORK.

STATE DEPARTMENT OF FERTILIZER, FEED AND AGRICULTURAL LIME CONTROL.

(ORGANIZED 1894.)

H. B. McDONNELL, M. S., M. D.,
State Chemist.

T. D. JARRELL, B. S.,
Assistant Chemist.

A. C. ADAMS, B. S.,
Assistant Chemist.

P. L. GOWEN, B. S.,
Assistant Chemist.

A. M. GIBSON,
Assistant Chemist.

C. G. REMSBURG, B. S.,
Assistant Chemist.

GRAYSON BAGGS,
Clerk.

J. H. BROOKE,
Inspector.

G. J. MICHAEL,
Inspector.

G. L. BOUNDS,
Inspector.

E. M. PRICE,
Inspector.

H. C. WHITEFORD,
Inspector.

J. S. SCARBOROUGH,
Inspector.

N. J. WALSH,
Inspector.

W. B. EVERETT, Jr.,
Inspector.

H. S. KOEHLER,
Inspector.

STATE DEPARTMENT OF FARMERS' INSTITUTES.

(ORGANIZED 1896.)

RICHARD S. HILL, M. D.,
Director.

STATE HORTICULTURAL DEPARTMENT.

(ORGANIZED 1898.)

T. B. SYMONS, M. S.,
Chief Inspector.

J. B. S. NORTON, M. S.,
Botany, Vegetable Pathology.

H. BECKENSTRATER, M. S.,
Pomology.

J. F. MONROE, B. S. A.,
Vegetable Culture.

E. N. CORY, M. S.,
Entomology.

C. P. SMITH, B. S., A. M.,
Botany.

B. W. ANSPON, B. S.,
Floriculture, Landscape Gardening.

L. L. BURRELL, B. S.,
Small Fruits.

W. C. TRAVERS,
Inspector.

MISS ANNA E. F. McCARTHY,
Clerk.

MISS MARGARET M. SUMMERS,
Stenographer.

LECTURERS, 1913-1914.

SHORT WINTER COURSES.

FARM CROPS.

MR. W. OSCAR COLLIER, Easton, Md.

1. Corn Production and Improvement.
2. Sugar Corn.

MR. NICKOLAS SCHMITZ, Maryland Agricultural Experiment Station, College Park, Md.

Alfalfa.

MR. W. J. MORSE, U. S. Department of Agriculture, Washington, D. C.

Cow Peas and Soy Beans.

POULTRY.

MR. ROY H. WAITE, Maryland Agricultural Experiment Station, College Park, Md.

1. Housing and Yards.
2. Incubation.
3. Brooding.
4. Feeds and Feeding.
5. Caponizing Demonstration.
6. Killing, Picking and Packing of Poultry.

PROF. C. A. ROGERS, Cornell University, Ithaca, N. Y.

1. Principles of Feeding Laying Hens.
2. Breeding for Constitutional Vigor.

MR. C. L. OPPERMAN, Berwyn, Md.

1. A System of Poultry Management in Maryland.
2. Natural Incubation and Brooding.
3. The Cost of Egg Production.

MR. A. R. LEE, U. S. Department of Agriculture, Washington, D. C.

1. Hot Water and Stove Brooding.
2. Fattening Poultry.

DR. H. J. PATTERSON, President, Maryland Agricultural College, College Park, Md.

The Handling of Poultry Manure.

MR. HARRY LAMON, U. S. Department of Agriculture, Washington, D. C.

1. Mating and Breeding as it is Practiced by a Fancier.
2. Marketing Poultry Products.

DR. PHILIP B. HADLEY, Chief of the Division of Biology, Rhode Island Experiment Station, Kingston, R. I.

1. Diseases of Young Chickens.
2. Diseases of Adult Fowls.
3. Mendelism in its Relation to Poultry Breeding.

MR. CHARLES T. CORNMAN, Editor "Poultry Item," Sellersville, Penn.

1. Judging Poultry.
2. Poultry Judging Demonstration.

HORTICULTURE.

MR. C. P. CLOSE, U. S. Department of Agriculture, Washington, D. C.

1. Apple Soils and Apple Varieties for Maryland.
2. Peach Culture.
3. Nut Culture in Maryland.

MR. ORLANDO HARRISON, Berlin, Md.

The Propagation of Fruit Trees and General Nursery Practice.

MR. E. P. COHILL, Hancock, Md.

Orchard Management.

MR. DAVID B. STEWART, Baltimore, Md.

Marketing Orchard and Truck Crops.

MR. A. L. QUAINTANCE, U. S. Department of Agriculture, Washington, D. C.

Some Important Insect Pests of the Orchard.

MR. F. S. HOLMES, Maryland Agricultural Experiment Station, College Park, Md.

The Pollination of Fruits.

MR. W. R. BALLARD, Maryland Agricultural Experiment Station, College Park, Md.

Pear Culture.

MR. M. B. WAITE, U. S. Department of Agriculture, Washington, D. C.

Some Important Fruit Diseases.

DR. F. P. VEITCH, U. S. Department of Agriculture, Washington, D. C.

Lime and Its Application to Agriculture.

MR. W. F. ALLEN, Salisbury, Md.

Strawberry Culture.

MR. H. C. WHITEFORD, Whiteford, Md.

The Canning of Corn and Peas.

MR. THOMAS H. WHITE, Maryland Agricultural Experiment Station, College Park, Md.

Sweet Potato Culture.

DR. H. J. PATTERSON, President, Maryland Agricultural College, College Park, Md.

Fertilizers, Their Mixing and Use.

MR. L. C. CORBETT, U. S. Department of Agriculture, Washington, D. C.

The Importance of Good Seed in the Growing of Truck Crops.

MR. RICHARD VINCENT, JR., White Marsh, Md.

Beautifying Home Grounds and the International Flower Show.

FARM LIVE STOCK AND DAIRY.

DR. H. J. PATTERSON, President, Maryland Agricultural College, College Park, Md.

Review of Station Work in Animal Industry.

MR. R. J. CARR, U. S. Department of Agriculture, Beltsville, Md.

Hogs.

MR. R. BRIGHAM, Brinklow, Md.

1. Care and Management of Sheep.
2. Breeding-up the Farmer's Flock.

MR. G. E. WOLCOTT, U. S. Department of Agriculture, College Park, Md.

1. Dairying.
2. Co-operative Breeders' Association.
3. Breeding-up a Herd.

DR. CHARLES O. APPLEMAN, Maryland Agricultural Experiment Station, College Park, Md.

Dairy Bacteriology.

MR. ALEXANDER M. FULFORD, Belair, Md.

Care and Management of Hogs.

DR. ERNEST KELLY, U. S. Department of Agriculture, Washington, D. C.

Sanitary Production of Milk.

MR. T. R. BROOKS, Emmorton, Md.

Hot-House Lambs.

MR. J. E. DORMAN, U. S. Department of Agriculture, Beltsville, Md.

Construction of Silos.

DR. FREDERICK C. BLANCK, Health Department, Baltimore, Md.

Dairy Inspection.

MR. W. E. HANGER, Maryland Agricultural Experiment Station, College Park, Md.

Growing Leguminous Crops for Farm Animals.

DR. B. M. BOLTON, Maryland Agricultural Experiment Station, College Park, Md.

Demonstration of Serum Treatment for Hog Cholera.

DOMESTIC SCIENCE.

MRS. E. P. FOULK, Professor of Home Economics, Ohio State University, Columbus, Ohio.

1. Fibres and Textiles.
2. Adulteration of Textiles.
3. House Furnishing.
4. Vegetables.
5. Canning.
6. Cuts of Meat.
7. Principles of Cooking Meat.
8. Planning Meals.

DR. CHARLES O. APPLEMAN, Maryland Agricultural Experiment Station, College Park, Md

1. Bacteriology.
2. Household Chemistry.
3. The Care of Milk.

DR. MARTHA BREWER LYON, Washington, D. C.

1. First Aid to the Injured.
2. House Nursing.
3. Care of Babies.

MRS. H. J. PATTERSON, College Park, Md.

Ventilation.

MR. YOUNG, Washington, D. C.

Demonstration of Methods of Cutting-up a Side of Beef for the Retail Trade.

MISS LENA BUMPUS, Columbus, Ohio

Chemistry of Cleaning.

FARMERS' INSTITUTES.

THE DIRECTOR, RICHARD S. HILL, College Park, Md.

1. Hay.
2. Grass.
3. Alfalfa.

MR. W. OSCAR COLLIER, Easton, Md.

1. Corn.
2. Soy Beans.
3. Crimson Clover.
4. Lime.

MR. JOHN H. DRURY, Chaney, Md.

Tobacco Culture.

MR. WILBERT DORSEY, Annapolis Junction, Md.

1. Farm Dairying.
2. Building-up a Herd.

MR. JAMES T. WILLIAMS, Preston, Md.

Tomato Culture for the Canning Factory.

MR. F. M. SOPER, Wyoming, Del.

Apple Culture and Marketing.

MR. E. I. OSWALD, Chewsville, Md.

1. Apple and Peach Culture.
2. Care of the old Orchard.

MR. HENRY C. WHITEFORD, Whiteford, Md.

Growing Sugar Corn for the Factory.

MR. JOHN LYNCH, Ridgely, Md.

Strawberry Culture.

MR. W. F. ALLEN, Salisbury, Md.

1. Strawberry Culture.
2. Melon Culture.

MR. ORLANDO HARRISON, Berlin, Md.

Prospects of Fruit Growing in the Peninsula.

MR. G. H. REITER, C. E., Chicago, Ill.

Uses of Cement on the Farm.

MR. J. R. HASWELL, Drainage Expert, U. S. Department of Agriculture, Washington, D. C.

Importance of Drainage.

MISS MARY A. BURNIGHT, Denton, Md.

1. Domestic Science.
2. Home Economics.

MEMBERS OF THE FACULTY, Maryland Agricultural College, College Park, Md.

MEMBERS OF THE STAFF, Maryland Agricultural Experiment Station, College Park, Md.

FACULTY COMMITTEES.

(The President is an Ex-officio Member of All Committees).

ALUMNI: Messrs. Buckley, Cory, Byrd, Warthen, and Jarrell.

AMUSEMENTS, DANCES, ENTERTAINMENTS, LECTURES, STUDENT SOCIALS: Messrs. Symons, T. H. Taliaferro, Crisp, Broughton, and Darrow.

CATALOGUE: Messrs. T. H. Taliaferro, Spence, Norton, Ruffner, and Metzger.

COURSES OF STUDY: Messrs. McDonnell, Spence, W. T. L. Taliaferro, Bomberger, Symons, T. H. Taliaferro, and Metzger.

DISCIPLINE: Messrs. Spence, McDonnell, T. H. Taliaferro, Hargrove, and Darrow.

LIBRARY: Messrs. Bomberger, W. T. L. Taliaferro, Gwinner, Smith, and Broughton.

PHYSICAL CULTURE AND ATHLETICS: Messrs. Byrd, Richardson, Dapray, Monroe, and Griffith.

PUBLIC FUNCTIONS: Messrs. Harrison, W. T. L. Taliaferro, Gwinner, Dapray, and Anspon.

PUBLICITY: Messrs. Brigham, Richardson, Symons, Metzger, and Ford.

SANITATION: Messrs. Griffith, McDonnell, W. T. L. Taliaferro, Buckley, and T. H. Taliaferro.

SCHEDULE: Messrs. Creese, McDonnell, Harrison, Norton, and Gwinner,

STUDENT ENROLLMENT AND CLASS AND QUARTER ASSIGNMENTS: Messrs. Spence, Harrison, Richardson, Crisp, and Brigham.

STUDENT ORGANIZATIONS, LITERARY SOCIETIES, FRATERNITIES, Y. M. C. A., GLEE CLUB, DRAMATIC ASSOCIATION: Messrs. Richardson, Creese, Burrell, Kinzy, and Darrow.

STUDENT PUBLICATIONS: Messrs. Richardson, Buckley, Bomberger, Cory, and Ford.

STUDENT RECORDS: Messrs. Spence, Harrison, Bomberger, Gwinner, and Beckenstrater.

STUDENT RELATIONS: Messrs. Bomberger, Harrison, Richardson, Symons, and Broughton.

CALENDAR.

1914.

THIRD TERM.

Monday, March 23rd.—Third Term Begins.
Wednesday, April 8th, Noon, to Tuesday, April 14th, 1 P. M.—Easter Recess.
Friday, May 15th.—Submitting of Theses.
Friday, June 12th.—Final Meeting of Trustees.
Sunday, June 14th.—Baccalaureate Sermon.
Monday, June 15th.—Class Day.
Tuesday, June 16th.—Alumni Day.
Wednesday, June 17th, 11 A. M.—Commencement Day Exercises.

1914-15.

FIRST TERM.

Tuesday, September 15th, and Wednesday, September 16th.—Entrance Examinations.
Thursday, September 17th, 1 P. M.—College Work Begins.
Thursday, November 26th.—Thanksgiving Recess.
Tuesday, December 22nd, 12 M.,—First Term Ends.
Tuesday, December 22nd, 12 M., to Tuesday, January 5th, 1 P. M.—Christmas recess.

SECOND TERM.

Tuesday, January 5th, 1 P. M.—Second Term Begins.
Wednesday, January 6th.—Special Winter Courses Begin.
Monday, February 1st.—Filing Subjects of Theses.
Saturday, March 20th.—Second Term and Special Winter Courses End.

THIRD TERM.

Monday, March 22nd.—Third Term Begins.
Wednesday, March 31st, Noon, to Tuesday, April 6th, 1 P. M.—Easter Recess.
Saturday, May 15th.—Submitting of Theses.
Friday, June 11th.—Final Meeting of Trustees.
Sunday, June 13th.—Baccalaureate Sermon.
Monday, June 14th.—Class Day.
Tuesday, June 15th.—Alumni Day.
Wednesday, June 16th, 11 A. M.—Commencement Day Exercises.

MARYLAND AGRICULTURAL COLLEGE.

HISTORY.

"An act to establish and endow an agricultural college in the State of Maryland" was passed by the Legislature of the State in 1856, and is found in Chapter 97 of the Laws of Maryland for that year. The scope of this act of incorporation is shown by the preamble, which reads as follows:

> WHEREAS, It has been represented to the Legislature, that certain wise and virtuous citizens are desirous of instituting and establishing in some convenient locality within this State, an Agricultural College and Model Farm, in which the youthful student may especially be instructed in those arts and sciences indispensable to successful agricultural pursuits; and
>
> WHEREAS, It doth appear to this Legislature, that while the wise and learned in the present age hath cultivated with laudable industry, and applied with admirable success the arts and sciences to other pursuits, the most necessary, useful and honorable pursuits of agriculturists have so far been lamentably neglected; and
>
> WHEREAS, It is the province and duty of the Legislature to encourage and aid the philanthropic citizens in their efforts to disseminate useful knowledge by establishing an Agricultural College and Model Farm, which shall, in addition to the usual course of scholastic training, particularly indoctrinate the youth of Maryland, theoretically and practically, in those arts and sciences, which with good manners and morals, shall enable them to subdue the earth and elevate the State to the lofty position its advantages in soil, climate, etc., and the moral and mental capacities of its citizens, entitle it to attain.

This was the first effort in the Western Hemisphere to use scientific investigation for the advancement of the vocation of Agriculture, since at that time no other institution of a similar character existed in the United States. Under the charter thus granted to a party of public-spirited individuals, the original College building was erected, and its doors were opened to students in the fall of 1859.

For three years it was conducted as a private institution. In 1862, the Congress of the United States, recognizing the valuable work in the cause of practical education which such colleges could achieve for the country passed the "Land Grant Act." This Act granted each State and Territory which should claim its benefit a proportionate amount of unclaimed Western lands, in place of scrip, the proceeds from the sale of which should apply under

certain conditions to the "**endowment, support and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life.**" This grant having been formally accepted by the General Assembly of Maryland, and the Maryland Agricultural College being named as the beneficiary of the grant, the College thus became, in part, at least, a State institution, and such it is at the present time.

During recent years the College has made a steady growth. This fact is evidenced by the increased number of students availing themselves of its facilities; by the erection of many new buildings—the library and gymnasium building, the chemical laboratory, Morrill Hall, the sanitarium, the engineering building, and Calvert Hall; as well as by the establishment of the Department of Farmers' Institutes and the State Departments of Chemistry (Fertilizer, Feed and Agricultural Lime Control), Horticulture, Entomology and Vegetable Pathology. As a consequence of its development under such favorable auspices the institution has become the most important factor in the agricultural and industrial development of the State.

The State Bureau of Forestry co-operates with the College, the Director being, by the terms of his appointment, Lecturer on Forestry at the Agricultural College.

LOCATION AND DESCRIPTION.

The Maryland Agricultural College is located in Prince George's county, Maryland, on the line of the Washington Branch of the B. & O. R. R., eight miles from Washington, and thirty-two miles from Baltimore. At least nine trains a day from each city stop at College Station, thus making the place easily accessible from all parts of the State. Telephone conection is made with the Chesapeake and Potomac lines.

The College grounds front on the Baltimore and Washington Boulevard. The suburban town of Hyattsville is two miles to the

south, and Laurel, the largest town in the county, is ten miles to the north on the same road. Access to these towns and to Washington may be had by steam and electric railway. The site of the College is particularly beautiful. The buildings occupy the crest of a commanding hill, which is covered with forest trees, and overlooks the entire surrounding country. In front, extending to the Boulevard, is a broad, rolling campus, the drill ground and athletic field of the students. In the rear are the farm buildings and barn. A quarter of a mile to the northeast are the buildings of the Experiment Station. The College farm contains about three hundred acres, and is devoted to fields, gardens, orchards, vineyard, poultry yards, etc., used for experimental purposes and demonstration work in agriculture and horticulture.

The general appearance of the College grounds is exceedingly attractive. They are tastefully laid off in lawns and terraces which are ornamented with shrubbery and flower beds. The view from the grove and campus cannot be surpassed.

The location of the College is healthful; the sanitary conditions are excellent. No better proof of this can be given than that there has been practically no serious case of illness among the students for many years.

COLLEGE BUILDINGS.

The original College building completed in 1859, and the administration building completed in 1904, and connected with the former by a covered bridge, were completely destroyed by fire on the night of November 29, 1912. A temporary assembly hall, kitchen and dining hall have been erected and are now in use. Living rooms for a part of the students are available in several houses on the College farm. Calvert Hall, the dormitory in course of construction, will be ready for occupancy in July.

In 1894 the building used as the gymnasium and library was erected. The gymnasium, on the ground floor, is being used, temporarily, as an armory. The library and reading room is on the second floor, and is well-lighted and commodious.

The Departments of Civil, Electrical and Mechanical Engineering and the Department of Physics are located in the two-story

brick building erected in 1896, the brick annex erected in 1904, and the brick addition constructed in 1909. This latter, which consists of a main building four stories in height and a wing three stories in height, is so arranged as to form with the buildings previously erected a concrete whole. In this group of buildings are found laboratories of various kinds, wood and machine shops, a forge room and foundry, drawing rooms, blue print rooms, instrument rooms, lecture rooms, offices, a library room, lavatories, lockers, etc. The equipment is modern in every respect and the facilities for work in the above named departments have been greatly increased.

The chemical building was completed in 1897, and is now thoroughly equipped. It contains several lecture rooms and laboratories for practical work and the analysis of fertilizers, feeding materials for domestic animals, and agricultural lime. This work is assigned by Acts of the General Assembly to the Professor of Chemistry at this College, who is thereby constituted State Chemist.

Important in the group of College buildings is Morrill Hall, erected in 1898. This building provides accommodations for the Departments of Agriculture, Horticulture, Entomology, Vegetable Pathology and Veterinary Science. A greenhouse for experimental work in entomology and vegetable pathology was erected in 1904. A range of ten greenhouses and a large potting shed are now in course of construction and will be ready for use at the beginning of the next scholastic year. These houses will afford splendid facilities for practical work.

The College Sanitarium, completed in 1901, is being used, temporarily, as the Administration Building.

GENERAL AIM AND PURPOSE.

The Agricultural College is the State school of science and technology. While seeking, first of all, to perform the functions of an agricultural college, its sphere of work has been widened to embrace all the sciences akin to agriculture, and all the arts related to mechanical training. To these special and prominent lines of work have been added such branches of study as are necessary for a liberal education, for the development of the intelligent citizen

and for general culture. The purpose of this college is to give young men anxious to prepare themselves for the active duties of life such training in the lecture room, laboratory and field as will enable them to take their places in the industrial world well prepared for the fierce competition of the day.

Recognizing that such an education, in order to be of practical advantage to many, must be offered at a cost within the means of all, the expenses for the year to the student have been reduced to the point where his college dues are not in excess of his ordinary daily expenses. It is to be remembered that the College is a State institution, in part supported by the State, in part by the Federal Government through its several endowment Acts, and that it is in no sense a money-making institution, but simply a medium of disbursement by the Government to those upon whom the safety, progress and prosperity of the State so largely depend.

While the College provides, as will hereafter be explained, several distinct courses of instruction, looking to the special training of the student in agriculture, engineering and science, the fact is clearly kept in view that a sound foundation must be laid for each and every course. Successful specialization is only practicable after the student has prepared for it by a thorough training in the essentials. All education must be narrow and one-sided which does not provide for the general culture of the student, and which does not look first to the natural and normal development of the individual. That the aim of the College is to train the student in a specialty without sacrificing his development in general culture is shown in the description of the general working plan given in the next paragraph.

It begins with the student in his first, or Freshman, year with a systematic and carefully adjusted scheme of work, differing but little in the several courses, and looking to his general development in mental strength, range of information and power of expression and thought. At the beginning of his second, or Sophomore, year the differentiation may be said to begin along those lines for which he shows most natural aptitude. This gradual specialization continues during his third, or Junior, year, until in his last, or Senior, year, his work consists chiefly of a few closely correlated topics, in which he is thus able thoroughly to prepare himself. With the

present equipment of the laboratories and work-shops a student is able to become so proficient in his chosen line of work that when he leaves the College a successful career is open to him.

The Agricultural College is, logically, the crowning point of the public school system of Maryland. Its aim in particular is to provide a higher education for the graduates of the county schools. To this end its curriculum is adjusted to meet the preparation of such students. It is this class of young men that the College is especially desirous of reaching. Experience has shown that our most satisfactory students come as graduates from the county schools, and no efforts will be spared to make the transition from the high school to the College a possible one for all those actuated by an earnest desire to complete their education.

DEPARTMENTS OF THE COLLEGE.

AGRICULTURE—
  AGRICULTURAL EDUCATION.
  AGRONOMY.
  ANIMAL HUSBANDRY.
BOTANY AND VEGETABLE PATHOLOGY.
CHEMISTRY AND BACTERIOLOGY.
CIVIL ENGINEERING.
ECONOMICS, POLITICAL SCIENCES AND HISTORY.
ELECTRICAL ENGINEERING AND PHYSICS.
ENGLISH AND PUBLIC SPEAKING.
ENTOMOLOGY AND ZOOLOGY.
HORTICULTURE—
  POMOLOGY.
  VEGETABLE CULTURE.
  LANDSCAPE GARDENING AND FLORICULTURE.
  FORESTRY.
LANGUAGES.
MATHEMATICS.
MECHANICAL ENGINEERING.
MILITARY SCIENCE.
PHYSICAL CULTURE.
SUB-COLLEGIATE INSTRUCTION.
VETERINARY SCIENCE.

The following pages give, under the several departments, the general character of the courses offered by each, and the main features of their equipment.

AGRICULTURAL EDUCATION.

PROFESSOR METZGER.

The work of the Agricultural Education Department is designed to meet the demand for men, trained in agricultural and allied subjects, to teach in the high schools of the State.

In the arrangement of the courses the needs of the agricultural

teacher have been kept in mind. The work, however, is open to any who desire an insight into the educational principles and problems of teaching vocational subjects.

The practice teaching is arranged to give the students of this Department experience in conducting class work and laboratory and field exercises. In addition, arrangement is made whereby the student receives both instruction and experience in the teaching and supervision of elementary industrial work in rural schools.

COURSES OFFERED.

1. LOGIC. Principles and practice of logic.

Text used: Jevon's Hill's "Logic."

Junior Year—Third Term, 2 theoretical periods per week.

2. PSYCHOLOGY. Principles of psychology. Lectures and text-book.

Text used: Angell's "Psychology."

Junior Year—First Term, 3 theoretical periods per week.

Senior Year—First Term, 4 theoretical periods per week.

3. HISTORY OF EDUCATION. Outline of the historical development of modern education.

Text used: Monroe's "Brief Course in the History of Education."

Junior Year—Second Term, 5 theoretical periods per week.

Senior Year—Second Term, 4 theoretical periods per week.

4. PRINCIPLES OF EDUCATION. Study of the principles and methods of modern education.

Text used: Thorndike's "Education."

Junior Year—Third Term, 4 theoretical periods per week.

Senior Year—Third Term, 4 theoretical periods per week.

5. METHODS OF TEACHING SECONDARY SCHOOL AGRICULTURE. The purpose of this course is the preparation of the student for the teaching of agricultural subjects through a knowledge of the educational aims, and of the principles applying to the choice of subject matter. The course involves a study of the recitation in its parts, the methods of conducting and the function of laboratory and field exercises, and the correlation of agriculture with other subjects.

Senior Year—First Term, 3 theoretical and 2 practical periods per week.

6. Organization and Materials. A course in the organization of courses of study, demonstration projects, and the selection of materials for the work in agriculture in secondary and elementary schools. This course is designed to acquaint the student with the materials and equipment necessary for the successful teaching of secondary agriculture, scope of work, order of presentation and the sources of supplies and equipment for recitation and laboratory work. The function and the use of school land and of home demonstration work are considered.

Senior Year—Second Term, 3 theoretical and 2 practical periods per week.

7. Rural Organization. A course in which the aims, the functions, the methods of organization, and the relation of rural to city institutions are considered.

Senior Year—Third Term, 3 theoretical and 2 practical periods per week.

8. Research and Thesis. The subject and lines of work to be arranged with the head of the Department. The purpose of the thesis is to study special problems in agricultural education.

SeniorYear —Third Term, 1 theoretical and 4 practical periods per week.

AGRONOMY.

PROFESSOR TALIAFERRO.
MR. KINZY.

The Department of Agronomy takes up the agricultural work pertaining to the field and its crops. A number of courses are offered. These treat of farm crops, their classification, soil and climatic adaptations, culture and improvement; soils, their physical and chemical properties, methods of treatment for maintenance and increase of productiveness; soil amendments, as manures, fertilizers, cover crops and lime; farm drainage; farm machinery; and farm management.

The College farm consists of two hundred and sixty-five acres of land and is operated by the Maryland Agricultural Experiment Station together with an adjoining leased farm.

Students of the College are kept in close touch with the general and experimental work on these farms which offer an unusual variety of soils and crops for observation and study.

Many of the students, who wish to do so, find work at fair wages on the farm and are thereby enabled to pay a part of their expenses as well as to gain valuable experience.

COURSES OFFERED.

20. ELEMENTARY AGRONOMY. This is an introductory course designed to acquaint the young student with the fundamental principles of good farm practice in the handling of soils and the profitable production of farm crops. At the same time it seeks to develop an interest in improved agriculture by showing its capabilities under proper management. Instruction is given by field and laboratory exercises with explanatory lectures.

Sub-Freshman Year—Third Term, 2 practical periods per week.

21. GENERAL AGRONOMY. The object of this course is to teach the approved methods of modern farm practice in regard to soils and crop production and from them by means of laboratory and field exercises, to deduce logically the scientific facts on which such practice rests. It also prepares the student for the more detailed study of soils and crops provided in the later courses.

Freshman Year—Second Term, 1 theoretical period per week; Third Term, 1 theoretical and 2 practical periods per week.

22. SOILS. The study of the physical and chemical conditions of the soils in their relation to profitable agriculture. The soil is the basis of all agriculture, and a knowledge of its properties and functions cannot be too highly emphasized. The study of this important subject is conducted by means of lectures, text-books, laboratory and field work. No State in the Union possesses a greater variety of soils than Maryland, and great attention is paid to the study of soil types in their relation to profitable agriculture.

A well-equipped soils laboratory and the wide variety of soils found on the College farm offer exceptional advantages in the theoretical and practical study of this important subject.

The text-book used is "Soils," by Lyon and Fippin.

Sophomore and First Year—First and Second Term, 2 theoretical and 4 practical periods per week.

23. Fertilizers. Of vital interest to the eastern and southern farmer of the present day is the fertilizing question. Between it and the profit and loss account is a very close connection, and frequently a lack of knowledge of the subject entails upon the farmer both the loss of money paid and of the possible increase of the crop. In this course the subject is developed logically from the needs of the plant and the efficiency of the soil to the selecting of the proper plant foods for each crop under varying conditions of soil and climate. Special attention is given to the home-mixing of fertilizers.

Sophomore and Second Year—Second Term, 2 theoretical and 4 practical periods per week.

24. Farm Crops and Drainage. A more detailed study of the common farm crops is taken up in this course than in any previous course. Instruction is given principally by lectures and practical work on the farm and in the laboratory. There is also provided on the Experiment Station farm practical work for the students in open ditching and under drains. Special attention is given to the principles and practice of tile drainage.

The text-book used in Farm Drainage is Elliott's "Practical Farm Drainage."

Sophomore and First Year—Third Term, 2 theoretical and 4 practical periods per week.

25. Crop Production. This course is intended only for those students who are specializing in agronomy. It consists of field and laboratory work in the study of the handling of fall-sown and fall-harvested crops. Great attention is given in this course to a careful note-taking and study of the results obtained in breeding work in corn and other fall maturing crops on the Experiment Station farm.

Junior Year—First Term, 2 theoretical and 4 practical periods per week.

Second Year—First Term, 3 theoretical and 4 practical periods per week; Third Term, 2 theoretical and 2 practical periods per week.

26. Farm Machinery. Lectures and practical work.

Senior Year—First Term, 2 theoretical and 4 practical periods per week.

First Year—Third Term, 2 theoretical and 4 practical periods per week.

27. Advanced Work in Crop Production and Soils. In this course a detailed study is made of the methods of Crop Production. The work in Soils is designed to familiarize the student with the details of soil management. It includes a study of the effects of the most approved systems of tillage and crop rotations upon the physical and chemical composition of the soil and its moisture content. The laboratory work consists of special studies on the type soils of Maryland, soils from the Experiment Station fields, which have been subjected to various systems of soil management, and samples of soils from the student's home farm.

Senior Year—First and Third Term, 3 theoretical and 4 practical periods per week.

28. Grain Judging. This course consists of a critical comparative study of the cereals and other farm seeds from the standpoint of market grading and fitness for seed purposes. It is designed so to familiarize the student with the subject that he may not only handle his own crops to the best advantage, but may also be qualified to act as a judge at county fairs, grain shows, etc. Instruction is given by means of laboratory practice and lectures.

Senior Year—Second Term, 4 practical periods per week.

Second Year—Second Term, 2 theoretical and 4 practical periods per week.

29. Farm Management. Lectures and practical work.

Senior Year—Third Term, 2 theoretical and 4 practical periods per week.

Second Year—First Term, 2 theoretical and 2 practical periods per week.

30. Thesis and Research. To be arranged for with the head of the Department.

Senior Year—First Term, 1 theoretical and 4 practical periods per week; Second Term, 4 practical periods per week; Third Term, 2 theoretical and 4 practical periods per week.

GEOGRAPHY.

COURSES OFFERED.

31. PHYSICAL GEOGRAPHY. A general view of natural phenomena and their mutual relations.

Preparatory Year—Second Term, 4 practical periods per week.

ANIMAL HUSBANDRY.

PROFESSOR RUFFNER.

The Department of Animal Husbandry stands for all lines of work which pertain to the judging, selecting, breeding, feeding, development, care and management of the various breeds and classes of domesticated animals. Good herds of stock are being established at the Maryland Agricultural Experiment Station which are of use to the student in his studies. In addition to the supply of stock on the farm the proximity of the College to Washington and Baltimore makes it possible for the student to get excellent material for study. The Heurich dairy farm, close by, furnishes an excellent example in dairy farming. It is quite evident that there is but one way to make a young man a proficient judge of live stock, and that is by training the eye. In all of the lecture and laboratory work outlined in the courses the work is demonstrated with living specimens.

New dairy barns are erected at the Experiment Station. These are models of sanitation. A well lighted and heated pavilion for judging live stock is a recent addition to the equipment.

Junior and Senior Students taking this course are sent to farms throughout the State of Maryland, and the eastern section of Virginia to supervise advanced registry tests for the dairy associations. These trips give the students the advantage of observing

the most up-to-date dairy farms in the country, in addition to practical experience.

For the past three years a judging team, consisting of three students, has been sent to Chicago to participate in the Student's Contest in Judging Dairy Cattle. Students in any of the agricultural courses are eligible to compete for a place on this team. The selection of students for the team is based upon ability and efficiency in this line of work.

A growing library of herd-books is available to the student of pedigrees. These books give a fund of information concerning heredity, fecundity and other breed characteristics.

COURSES OFFERED.

40. ELEMENTARY ANIMAL HUSBANDRY. This course consists of lectures and practical demonstrations in the judging, selecting and feeding for specific purposes of certain classes of domestic animals, together with a very elementary course in dairying.

Preparatory Year—First Term, 2 practical periods per week.

41. BREEDS AND SCORING. This course is devoted to the detailed study of the breeds of live stock. The practical work commences with a study of the animal form by the use of the score-card. Special attention is given to the relation of form to function. First, the productive types are firmly fixed in the student's mind; then he takes up more particularly breed characteristics.

Text-books: "Types and Breeds of Farm Animals," by Plumb and "Judging Live Stock," by Craig.

Freshman and First Year—First Term, 1 theoretical and 4 practical periods per week.

Junior Year—First Term, 2 theoretical and 4 practical periods per week.

42. FARM BUILDINGS. This course has for its object the development of proper ideas in the construction and arrangement of buildings for the housing of stock; the storage of food materials, animal and dairy products; and incidentally the storage of harness and implements. Convenience, economy and proper sanitation are especially considered in the study of plans and location.

The course is made as practical as possible by the study of plans, specifications and photographs of existing structures, and by drawing simple plans to express individual ideas.

Freshman and First Year—Second Term, 4 practical periods per week.

43. Live Stock Management. Lectures are given on the housing, feeding, care and management of dairy cattle, hogs and horses; the housing, feeding, care and management of beef cattle and sheep. The practical work consists of application of the principles developed in the lectures, and takes up the drawing of barn plans and other stable conveniences.

Sophomore Year—First Term, 2 theoretical and 4 practical periods per week.

44. Principles of Breeding. This course takes up the principles of breeding, including selection, heredity, atavism, variation, fecundity, in-and-in breeding, cross-breeding and a historical study of the results.

Text-books: "Principles of Breeding," Davenport, "Breeding Farm Animals," Marshall.

Junior and Second Year—First Term, 3 theoretical periods per week.

45. Animal Nutrition. This course embraces the principles and practice of animal feeding. After covering the principles of nutrition, it takes up the composition of feeding stuffs, their combination into properly balanced rations, and the relation between the sustenance of animals and their products. Students entering this course should have completed courses in organic chemistry and comparative anatomy and physiology.

Text-books: "Feeds and Feeding," Henry, "Feeding of Animals," Jordan.

Junior Year—Second Term, 4 theoretical and 2 practical periods per week; Third Term, 2 theoretical and 4 practical periods per week.

Senior Year—First Term, 3 theoretical and 4 practical periods per week; Third Term, 3 theoretical and 2 practical periods per week.

Second Year—First and Second Term, 2 theoretical periods per week.

46. Stock Judging. Special attention is paid to the judging of groups of animals, similar to county and State fair work.

Junior Year—Third Term, 1 theoretical and 4 practical periods per week.

Second Year—First Term, 4 practical periods per week.

47. Dairying. Lectures, recitations and practical work.

Text-books: Wing's "Milk and Its Products," Russell's "Dairy Bacteriology."

Senior Year—Second Term, 2 theoretical and 4 practical periods per week.

Second Year—Third Term, 2 theoretical and 4 practical periods per week.

48. Profitable Stock Feeding. This course treats of the feeding of animals in a most practical manner. Special attention is given to the feeding of breeding stock and the fattening of animals for market. There is no special requirement to enter this course, as in course 45.

Text-books: "The Management and Feeding of Cattle," by Thomas Shaw, "Profitable Stockfeeding," by Smith.

Second Year—Second Term, 4 practical periods per week.

49. Farm Poultry. This course takes up the methods of housing, artificial incubation, artificial breeding, feeding of chicks, feeding of laying hens and diseases of poultry.

Text-book: "Poultry Craft," by Robinson.

Senior and First Year—Second Term, 2 theoretical periods per week.

50. Research and Thesis. The lines of work and subjects to be investigated are to be arranged with the head of the Department.

The object of this work is to develop independence and originality in the student, and also to give him a taste for personal investigation upon lines which are of particular interest to himself. The results of these investigations are usually incorporated in a thesis.

Senior Year—First Term, 1 theoretical and 4 practical periods per week; Second Term, 4 practical periods per week; Third Term, 2 theoretical and 4 practical periods per week.

BOTANY AND VEGETABLE PATHOLOGY.

PROFESSOR NORTON.

ASSOCIATE PROFESSOR SMITH.

The courses in botany are intended to give such knowledge of the vegetable kingdom as is a proper element in general culture; to train the student mind in observation, comparison, generalization and other mental processes essential to true scientific methods in any work; and to furnish a basis for practical studies directly connected with agriculture, since plants are the subjects dealt with in the field and garden. In addition to the courses in pure botany, others of special economic trend are given. These are specially for students in the Agricultural and Horticultural Courses, and take up such botanical studies of cultivated plants, plant diseases, etc., as may be useful in practical life to the professional farmer or gardener.

The equipment and means for illustration and demonstration consist of a reference library containing the principal botanical works needed by students, charts and maps, compound and dissecting microscopes, preserved specimens for illustration and a representative collection of Maryland plants; microtome and other instruments together with reagents and apparatus for histological work and physiological experiments; and a culture room, sterilizers, incubators and other facilities for the study of plant diseases.

Advanced students have an opportunity to observe the work being done in the laboratory of Vegetable Pathology and greenhouse of the State Horticultural Department and of the Experiment Station, and, if competent, to assist in the same. Special attention is given to students who wish practice in the treatment of plant diseases, as it is the desire of the Department to encourage young men to engage in this work as a business.

COURSES OFFERED.

60. PLANT LIFE. The course gives the student an idea of the following courses in botany, and is to aid him in deciding later in what studies he wishes to specialize.

Preparatory Year—Third Term, 2 practical periods per week.

61. Elementary Botany. The students familiarize themselves with the commoner plants and their names; and discussions of their ecology and economic importance are taken up.

Sub-Freshman Year—First Term, 2 practical periods per week.

62. Seeds and Weeds. By examination and careful study the student becomes familiar with the ordinary field and garden seeds, and with the weed seeds which are commonly found as adulterants. He is thus enabled to identify these at sight. A study of the common weeds is also pursued.

First Year—First Term, 4 practical periods per week.

63. General Principles. This is an elementary course in the general principles of anatomy, morphology and physiology of the higher plants. The structure and types of seed, root, stem, leaves, flowers and fruit are studied in the laboratory, with a brief consideration of the functions of the different plant organs, a more complete course in plant physiology (66) being given later.

There is also field work, with the manual on the native flora, designed to give a knowledge of the common Maryland plants and their position in the classification of the vegetable kingdom. The ecology of the plants examined in the field is also considered, and includes their relation to soils, water supply, light and other factors in their environment, cross pollination, dissemination of seeds, plant societies, etc. Each student makes a collection of plants from some part of the State.

Bergen and Caldwell's "Practical Botany" is the principal textbook used.

Reference books: Gray's "Field, Forest and Garden Botany," Britton's "Manual," Gray's "New Manual," Britton and Brown's "Illustrated Flora."

Freshman Year—Third Term, 2 theoretical and 4 practical periods per week.

64. Farm Botany. Work similar to that given in 63, with special reference to the agricultural side of botany.

First Year—Third Term, 2 theoretical and 4 practical periods per week.

65. Plant Histology. Laboratory work with the compound microscope, studying the minute structure of the tissues and organs of the various types of plants. Each student prepares a series of

sections for study with the microscope, from which he makes a set of outline drawings.

Steven's "Plant Anatomy" and Chamberlain's "Methods in Plant Histology" are the principal books used.

Sophomore Year—First Term, 1 theoretical and 6 practical periods per week.

66. Plant Physiology. Lectures and experiments on the life processes of plants; absorption and transfer of water and food materials, photosynthesis, respiration, growth, movement and reproduction. Special attention is given to the relation of physiological principles to agriculture.

Text-books: Barnes' "Physiology," Osterhaut's "Experiments with Plants."

Sophomore Year—Second Term, 1 theoretical and 6 practical periods per week; Third Term, 2 theoretical and 4 practical periods per week.

67. Comparative Morphology and Classification. A comparative study of the structure and life history of the principal types of plants from the lowest to the highest, based on microscopic studies in the laboratory.

Text-book: Bergen and Davis' "Principles of Botany," Part II. The outline of classification of Engler's "Syllabus" is followed in general.

Junior Year—First Term, 6 practical periods per week.

68. Economic Plants. Lectures are given on the names, classification, nativity and uses of the useful and detrimental plants of the world, and field and laboratory studies are made of the common cultivated plants. This is done with a view to enabling the student of horticulture or agriculture to know the scientific names and relationship of the plants with which he comes in contact in his chosen work.

Reference works: Bailey's Gray's "Field, Forest and Garden Botany," Bailey's "Encyclopedia of Horticulture," etc.

Junior Year—Second Term, 2 theoretical and 4 practical periods per week.

69. Seed Analysis. Practical work in testing seeds for purity and viability, including all methods used in the State Seed Laboratory located at the Experiment Station.

Junior Year—Second Term, 1 theoretical and 4 practical periods per week.

70. Microscopy of Foods and Drugs. The identification of various food and drug products and their adulterants by means of the microscope.

Junior Year—Third Term, 2 theoretical and 4 practical periods per week.

71. Plant Diseases. A practical study of diseases of plants to enable the student to know them and to understand the methods of control.

Second Year—Third Term, 2 theoretical and 2 practical periods per week.

72. Vegetable Pathology. This includes microscopic and macroscopic examinations of parasitic fungi in their relations to diseases in higher plants, studies of the nature of disease in plants, physiological diseases, etc., together with the best known means for the prevention and control of diseases. Lectures, reference work, laboratory work and experiments in infection and treatment constitute the course.

Junior Year—Third Term, 2 theoretical and 4 practical periods per week.

73. Vegetable Pathology. This course is an extension of course 72 and is required of Biological students specializing in botany.

Junior Year—Third Term, 1 theoretical and 4 practical periods per week.

74. Elective courses for students of the Biological Course and for post-graduate students are offered in Methods in Plant Pathology, Botanical Microchemistry, Histology of Trees, Weeds and Poisonous Plants, Seed Testing, Taxonomy or advanced work in any of the undergraduate courses before mentioned.

Senior Year—7 theoretical and 12 practical periods per week.

75. Research. Students electing botany as a major in the Senior Year devote a portion of their time to the completion of an original study of some botanical subject upon which they prepare the graduation thesis. The time scheduled is a minimum.

Senior Year—1 theoretical and 4 practical periods per week.

CHEMISTRY AND BACTERIOLOGY.

PROFESSOR MCDONNELL.

ASSOCIATE PROFESSOR RROUGHTON.

MR. GOWEN.

MR. LAMSON.

This Department is charged with two distinct classes of work. (1) The State fertilizer, feed and lime inspection, and (2) the instruction of students. The State work necessitates the publication of the "Quarterly" bulletin, which is usually made up of the results of the analysis of fertilizers, feeding stuffs, or agricultural lime, and is sent free of charge to all Maryland farmers who apply. Students do no part of the State work, the assistants being college graduates. However, this work serves as a valuable object lesson to the advanced students.

The Chemical Laboratory Building is devoted entirely to chemistry. Not including basement, it is two stories high. On the first floor are the laboratories for the State fertilizer, feed and lime control work, office, lecture room and balance room. On the second floor are three laboratories for the use of students—one for each class—a students' balance room with first-class chemical and assay balances, polariscope, refractometers, spectroscopes, etc., and a supply room. The assay furnaces are in the basement. Each student is provided with a working desk, lockers, reagents and apparatus. Additional apparatus and materials are provided from the supply room, as needed.

The Department is provided with a small, but well-selected, library of standard reference books on chemistry, to which additions are made from time to time.

Instruction in chemistry is begun in the Second Term of the Freshman Year, three to four periods per week being devoted to lectures and recitations, and two to four periods to practical work in the laboratory by the student, under the supervision of the instructor. In this way he comes in direct contact with the substances studied, having at hand ample facilities for learning their properties. Special attention is given to the elements and compounds of practical and economic importance, such as the air, water and soil, the elements entering into the composition of plants and

animals, the useful metals, etc. This course is intended to give the student that practical and theoretical knowledge of elementary chemistry which is essential in the education of every man, no matter what his vocation. It also serves as a foundation for advanced work in chemistry, if such a course is chosen.

Advanced work in chemistry begins with the Sophomore Year, Second Term, if the Course in Chemistry is selected, and the larger part of the student's time is devoted to some branch of theoretical or practical chemistry during the rest of his course, as outlined elsewhere.

CHEMISTRY.

COURSES OFFERED.

80. Farm Chemistry. This course consists of an elementary course in general chemistry, with special reference to the chemistry of plants, animals, fertilizers, etc., and is offered to students taking the two-year courses in Agriculture and Horticulture.

Text-book: Kahlenberg and Hart's "Chemistry in Its Relations to Daily Life."

Second Year—2 theoretical and 2 practical periods per week.

81. General Chemistry. Recitations and practical work in the laboratory, where the student performs the experiments under the direction of the instructors. Qualitative analysis is started in this course.

Text-book: Remsen's "Introduction to the Study of Chemistry."

Freshman Year—Second and Third Terms, 4 theoretical and 2 practical periods per week.

Sophomore Year—First Term, 3 theoretical and 4 practical periods per week.

82. Qualitative Analysis. Lectures and laboratory work.

Text-book: Hind's "Qualitative Analysis."

Sophomore Year—Second Term, 8 practical periods per week; Third Term, 1 theoretical and 8 practical periods per week.

83. Qualitative Analysis. For students taking the Agricultural, Horticultural, Biological and General Science Courses.

Text-book: Hind's "Qualitative Analysis."

Sophomore Year—Second Term, 1 theoretical and 8 practical periods per week.

84. Quantitative Analysis. For students taking the Agricultural, Biological and General Science Courses. A brief course illustrating some of the general principles in the quantitative study of chemistry. In the latter part of the course the agricultural students are given the option of the analysis of fertilizers, feeds, butter, milk, etc.

Text-book: Lincoln and Walton's "Quantitative Analysis."

Sophomore Year—Third Term, 1 conference and 8 practical periods per week.

85. Theoretical Chemistry. A discussion of the fundamental laws and theories of modern chemistry.

Text-books: Remsen's "Theoretical Chemistry," and Talbot and Blanchard's "Electrolytic Dissociation Theory."

Sophomore Year—Third Term, 2 theoretical periods per week.

86. Mineralogy. This is a course in determinative mineralogy. The more important minerals are identified by their more characteristic physical and chemical properties, the blow-pipe being an important aid.

Text-book: Brush and Penfield's "Determinative Mineralogy and Blowpipe Analysis."

Sophomore Year—Third Term, 1 theoretical and 4 practical periods per week.

87. Geology. Attention is given chiefly to physical geology. The latter half of the course is devoted to the geology of Maryland, specially as affecting the character of the soils, mineral wealth and other economic conditions of the State. Instruction is given by means of text-book work, lectures and field excursions.

Junior Year—First Term, 2 theoretical and 2 practical periods per week; Second Term, 2 theoretical periods per week.

88. Organic Chemistry. For students taking the Agricultural, Biological and General Science Courses. Recitations and lectures.

Text-book: Remsen's "Organic Chemistry."

Junior Year—First Term, 4 theoretical periods per week.

89. Stoichiometry. Problems relating to analytical and applied chemistry.

Text-book: Miller's "Analytical Calculations."

Junior Year—1 theoretical period per week.

90. Quantitative Analysis. Consisting of Gravimetric and Volumetric Determinations. Determinations are selected, so as to illustrate the general principles of the work. The volumetric work consists of acidimetry, alkalimetry, iodometry, oxidation and reduction. Neatness and accuracy are insisted upon in the laboratory, and in the conference periods the chemistry and mathematics of each determination are thoroughly discussed.

Text-books: Olsen's "Quantitative Analysis," Sutton's "Volumetric Analysis."

Junior Year—First Term, 1 theoretical and 12 practical periods per week; Second Term, 1 theoretical and 10 practical periods per week; Third Term, 1 theoretical and 8 practical periods per week.

91. Organic Chemistry. The chemistry of carbon compounds.

Text-books: Perkin & Kipin's "Laboratory Manual" and Gattermann's "Practical Methods of Organic Chemistry," translated by Schober.

Junior Year—First Term, 3 theoretical periods per week; Second and Third Term, 3 theoretical and 4 practical periods per week.

92. Agricultural Chemistry. The chemistry of soils, fertilizers, plant life, animal life, etc.

Text-book: Ingle's "Manual of Agricultural Chemistry."

Senior Year—First Term, 4 theoretical periods per week.

93. Agricultural Chemical Analysis. This is a thorough course in the analysis of fertilizers and fertilizing materials, feeding stuffs, butter, milk, sugar, starch, etc.

Senior Year—First Term, 20 practical periods per week.

94. Physiological Chemistry. Recitations and lectures.

Text-book: Hawk's "Physiological Chemistry."

Senior Year—First Term, 4 theoretical and 4 practical periods per week.

95. Industrial Chemistry. The study of the practical methods employed in the various chemical industries. Visits are made to

ice, fermentation, and gas plants; also to fertilizer, glass, iron and steel works; etc.

Text-book: Thorp's "Outlines of Industrial Chemistry."

Senior Year—Second and Third Term, 3 theoretical periods per week.

96. Physical Chemistry. In this course the student becomes familiar with the advanced theories of chemistry, and some of the methods employed by research chemists. The laboratory work consists of the determination of the boiling and melting point, lowering of the freezing point by substances in solution, determination of vapor densities and combustion methods for determination of carbon, hydrogen and nitrogen.

Text-book: Jones' "Physical Chemistry."

Senior Year—Second Term, 3 theoretical and 20 practical periods per week; Third Term, 3 theoretical periods per week.

97. Advanced Agricultural Analysis.

Text-book: "Methods of Analysis of the Association of Official Agricultural Chemists."

Senior Year—Third Term, 16 practical periods per week.

98. Thesis. Investigation along agricultural chemical lines to be embodied in a graduating thesis. In addition to the time scheduled, a part of the work done under courses 94, 95 and 96 will be included.

Senior Year—Third Term, 2 theoretical periods per week.

BACTERIOLOGY.

COURSES OFFERED.

100. Bacteriology. Methods of studying bacteria, sterilization, preparation of culture media, staining, etc. Study of various types of bacteria along morphological and biochemical lines. A thorough training in fundamental bacteriological technique. In connection with the laboratory work, a discussion of Ehrlich's theory of immunity and a demonstration of some phenomenon relating to the application of the theory.

Junior Year—Second Term, 8 practical periods per week.

Senior Year—Second Term, 8 practical periods per week.

101. Bacteriology. A continuation of course 100, including methods of anaerobic cultivation, with the practical application of bacteriology to the bacteriological examination of water, milk, soil, etc. The intimate relation existing between this and all other agricultural sciences makes it a valuable course for a student in any branch of agriculture.

Junior Year—Third Term, 8 practical periods per week.

Senior Year—Third Term, 8 practical periods per week.

102. Elementary Bacteriology. A brief course is offered the students attending the two-year courses in Agriculture and Horticulture. Special emphasis is placed upon the methods of determining the bacterial content of milk, its source, its significance and its control.

Second Year—Second Term, 2 practical periods per week.

CIVIL ENGINEERING.

PROFESSOR TALIAFERRO.

MR. SPRINGER.

The subjects pertaining to civil engineering are arranged with the object of emphasizing the fundamental principles through lectures and recitations in the class-room, supplemented by practical exercises in the field, drafting room and laboratory. Self-reliance being an essential factor in the success of an engineer, the student is encouraged in every way to develop this habit.

Equipment. In addition to minor engineering instruments, etc., the Department is at present equipped with three compasses, four transits and four levels.

The experimental laboratory contains a thousand pound Riehle cement testing machine and a hundred thousand pound Riehle machine for making tensile and other tests of the various kinds of materials. A description of this latter machine will be found on page

74, it having been purchased for the use of the Civil and Mechanical Engineering Departments. A description of the drafting and blue print rooms used by the Civil Engineering Department will also be found on page 75.

Some hydraulic apparatus of a character suited to the needs of the Department has been installed and other apparatus will be purchased as the funds permit.

Tours of Inspection—During the session members of the Senior and Junior classes, accompanied by an instructor, take trips for the purpose of making an examination of the different types of modern engineering construction.

COURSES OFFERED.

The subjects outlined, with one exception, constitute a portion of the curriculum of students in the Civil Engineering Course.

120. General Engineering Drawing. Isometric and cabinet projections. Perspective. Water coloring. Paper stretching. Blue printing. Ornamental lettering, round writing and title work. Floor plans, elevations and architectural details. Mapping contours and profiling. Conventional signs.

Freshman Year—First Term, 4 practical periods per week.

Junior Year—First and Second Term, 6 practical periods per week; Third Term, 4 practical periods per week.

121. Surveying. This course includes the use and adjustment of engineering instruments, the methods of land surveying, the plotting and computing of areas, dividing of land, the theory of the stadia, true meridian lines, leveling, topographical surveying, railroad curves and cross sectioning.

Texts: Hosmer and Breed's "The Principles and Practice of Surveying," and Pence & Ketchum's "Field Manual."

Freshman Year—Second Term, 2 theoretical periods per week; Third Term, 4 practical periods per week.

Sophomore Year—First Term, 4 practical periods per week; Second Term, 4 theoretical periods per week; Third Term, 2 theoretical and 4 practical periods per week.

Junior Year—First Term, 2 theoretical and 4 practical periods per week.

122. MECHANICS. A study of statics, dealing with the composition and resolution of forces, moments, couples, machines and laws of friction; and of dynamics, dealing with velocity, acceleration, laws of motion, work, energy and applications to problems.

Junior Year—First Term, 4 theoretical periods per week.

123. RAILWAY ENGINEERING. A study is made of preliminary and location surveys, cross sectioning, calculation of quantities, etc.

Text: Allen's "Railroad Curves and Earthwork."

Junior Year—Second and Third Term, 3 theoretical periods per week.

124. BRIDGE AND STRUCTURAL DESIGN. This course includes the complete design and detailing of a steel roof truss and a plate girder; the detailing from standard commercial drawing sheets of floor beams, girders and columns; and the complete design of a bridge truss of either the Warren or Pratt type. The stresses are determined by both analytical and graphic methods.

Texts: Merriman and Jacoby's "Stresses," Cooper's "Bridge Specifications," "Cambria Hand Book," Thompson's "Bridge and Structural Design," Merriman and Jacoby's "Bridge Design."

Junior Year—Second and Third Term, 2 theoretical and 4 practical periods per week.

125. MECHANICS OF MATERIALS. This course treats of the elasticity and resistance of materials of construction, and the mechanics of beams, columns and shafts.

Text: Merriman's "Mechanics of Materials."

Junior Year—Second Term, 3 theoretical periods per week; Third Term, 5 theoretical periods per week.

126. SURVEYING. This course is intended, primarily, to meet the needs of students in the Agricultural and Horticultural Courses. It includes the use of the compass, transit and level, one or more methods of land surveying, the plotting and computing of areas, leveling and topographical surveying.

Text: To be selected.

Junior Year—Third Term, 2 theoretical and 4 practical periods per week.

127. PRACTICAL PROBLEMS. The necessity for practical work on the part of those desiring to enter upon engineering as a profes-

sion is obvious. To meet this condition a number of hours have been scheduled for field and laboratory work in practical problems relating to engineering. The laboratory work includes the testing of cement and other materials of construction, various hydraulic experiments, the operation of engines, etc. The scheduled hours constitute a minimum, the student being encouraged to give as much more of his time as is possible to problems of this character.

Junior Year—Third Term, 8 practical periods per week.

Senior Year—First Term, 12 practical periods per week; Second and Third Term, 4 practical periods per week.

128. CONCRETE. A study of cement, concrete, and reinforced concrete construction.

Text: Hools "Reinforced Concrete Construction."

Senior Year—First Term, 4 theoretical periods per week.

129. HYDRAULICS. The principles of hydraulics, flow through pipes, water supply, etc., are discussed in this course.

Text: Lea's "Hydraulics."

Senior Year—First Term, 3 theoretical periods per week; Second Term, 5 theoretical periods per week.

130. ESTIMATES OF COST. Lectures are given on the methods of estimating cost and these are supplemented by problems of a practical nature.

Senior Year—Second Term, 1 theoretical and 4 practical periods per week; Third Term, 2 practical periods per week.

131. HIGHWAY ENGINEERING. This course includes the location, construction and maintenance of roads.

Text: Blanchard and Drowne's "Highway Engineering."

Senior Year—Third Term, 5 theoretical periods per week.

132. THESIS. This involves a study of some selected problem in engineering.

Senior Year—Second Term, 4 practical periods per week; Third Term, 8 practical periods per week.

ECONOMICS, POLITICAL SCIENCE AND HISTORY.

PROFESSOR BOMBERGER.

The course in this Department are specially designed to prepare young men for the active duties of citizenship. The first

year of the Collegiate work is devoted to the study of modern history, which is followed by the principles of civil government, constitutional history, political economy (with especial reference to current, social, rural and industrial problems), and, finally, the elements of business and international law.

ECONOMICS AND POLITICAL SCIENCE.

COURSES OFFERED.

140. CIVIL GOVERNMENT. Study of the history and development of the Constitution of the United States.

Text used: Beard's "American Government and Politics."

Junior Year—First and Second Term, 3 theoretical periods per week.

141. BUSINESS LAW. Principles of law as practically applied in everyday life and business.

Text used: Huffcut's "Elements of Business Law."

Junior Year—Third Term, 3 theoretical periods per week.

142. BUSINESS LAW. A course for the students in the two-year Agricultural and Horticultural Courses on the principles of law as practically applied in everyday life and business.

Text used: 'Hamilton's "Practical Law."

Second Year—Second Term, 3 theoretical periods per week.

143. POLITICAL ECONOMY. Principles of political economy and industrial development of the United States; rural economics; social science; and current problems.

Text used: Seager's "Introduction to Economics."

Senior Year—4 theoretical periods per week.

144. COMPARATIVE GOVERNMENT. Study of the governments of the leading nations of Europe. Elective.

Text used: Ogg's "Governments of Europe."

Senior Year—First Term, 4 theoretical periods per week.

145. MUNICIPAL GOVERNMENTS. Study of typical modern municipal governments of the United States and Europe. Elective.

Senior Year—Second Term, 4 theoretical periods per week.

146. International Law. Elements of international law. Elective.

Text used: Davis' "Elements of International Law."

Senior Year—Third Term, 4 theoretical periods per week.

147. Rural Economics. Special study of rural economic problems. Elective.

Senior Year—4 theoretical periods per week.

HISTORY.

COURSES OFFERED.

160. United States History. A study of the chief epochs of American history.

Text used: Adams and Trent's "History of the United States."

Preparatory Year—First and Second Term, 5 theoretical periods per week.

161. English History. Outlines of English history.

Text used: Andrew's "Short History of England."

Preparatory Year—Third Term, 5 theoretical periods per week.

162. General History. Outlines of general history.

Text used: Myer's "General History."

Sub-Freshman Year—First Term, 2 theoretical periods per week; Second and Third Term, 3 theoretical periods per week.

163. Modern European History. From the treaty of Westphalia to the present time.

Text used: Robinson and Beard's "Development of Modern Europe.'

Freshman Year—3 theoretical periods per week.

164. American History. Political and economic history of the United States with special reference to the nineteenth century.

Sophomore Year—First and Second Term, 4 theoretical periods per week; Third Term, 3 theoretical periods per week.

165. Advanced History. Selected topics. Elective.

Junior Year—3 theoretical periods per week.

ELECTRICAL ENGINEERING AND PHYSICS.

PROFESSOR CREESE.
MR. KAH.

ELECTRICAL ENGINEERING.

The work of the Electrical Engineering Course is so arranged as to give the student a thorough understanding of the fundamental principles of the various branches of electrical engineering, and at the same time to teach him to apply these principles to the practical problems with which the engineer has to deal. This purpose is carried out by means of lectures and recitations in the class-room, supplemented by practical work in the laboratories and drawing room.

EQUIPMENT. The Electrical Engineering Laboratories are located in the east wing of the new engineering building. The rooms on the first floor are used for lectures, recitations and experimental demonstrations by the instructor; a room on the second floor is equipped with apparatus for experimental work in telephone engineering; and the basement contains the dynamo room and the electrical engineering testing room.

The electrical engineering testing room is fitted up with such appliances as are used to the best advantage in engineering practice. Special effort has been made to purchase only the best instruments, as the use of poorer grades influences the student unfavorably. With poor instruments he cannot be taught to do satisfactory work and he becomes careless in the handling of them.

Among other things the following apparatus has been purchased for the testing laboratory:

A Leeds and Northrup potentiometer and Weston standard voltmeter and ammeter for calibrating the various measuring instruments used in the laboratory. A Sharp-Millar portable photometer and a Queen & Co. standard photometer for measuring the candle-power of lamps and for determination of illumination intensities. A large number of portable ammeters, voltmeters, and indicating wattmeters for direct and alternating current measurements; standard curve drawing voltmeter and ammeter; electrostatic voltmeter; frequency meters; silver and copper voltameters; Siemen's

type electrodynamometer; watthourmeters, both direct and alternating current. A Leeds and Northrup standard portable testing set; heating devices; condensers; tachometers; multiple circuit ammeter and voltmeter switches. D'Arsonval galvanometers; standard resistance boxes and bridges, including a very accurate decade resistance box and a decade resistance and Wheatstone bridge; double and single contact keys, condenser keys, etc.

The lamps used for experimental purposes include direct and alternating current multiple carbon arc, magnetic arc, mercury, vapor and nernst lamps.

A Curtis steam turbine, direct connected to a 35-kilowatt compound generator, has been installed for testing purposes. This may be used in connection with the College lighting plant when needed, and will be used for light and power service in the engineering building.

The laboratory is so wired that connection may be made readily with any part of the College lighting plant, with the turbo-generator or with any of the apparatus in the dynamo room.

The apparatus in the dynamo room includes the following: A 10-kilowatt rotary converter of the latest type with speed limit and end play devices. A 5 horse-power variable speed commutating pole motor. A 7.5 kilowatt, 60 cycle, 220 volt alternator designed to operate either as a polyphase generator, synchronous motor, frequency changer, constant speed induction motor, or variable speed induction motor; the following parts are supplied with the set to make possible its operation in any of the above named ways;—a stationary armature for use either as an alternating current generator or as an induction motor field; a revolving field; a squirrel cage induction motor rotor with starting compensator having self-contained switches; an induction motor rotor with internal starting resistance; and an induction motor rotor with 3 phase collector rings, external resistance, and controller. A 2 kilowatt booster set, consisting of a series motor and shunt generator with armatures mounted on the same shaft. A 5 horse-power compound direct current motor and a 1.5 horse-power shunt motor fully enclosed. A 7.5 kilowatt, 120 volt, 3 phase self-excited generator direct connected to a 115 volt compound direct current motor. A motor-generator

set consisting of a 3.6 horse-power shunt motor direct connected to a 2 kilowatt compound generator. A 3 horse-power, 3 phase induction motor. A 0.5 kilowatt shunt generator belt connected to a 0.5 horse-power variable speed shunt motor. Two 2 kilowatt transformers to transform power from 110 or 220 volts to 1100 or 2200 volts. Various types of starting rheostats with automatic overload and no voltage release; field rheostats.

The main switchboards, consisting of two blue Vermont marble panels on pipe supports, are used to mount the necessary circuit breaker, rheostats, switches, etc., to control the generators and motors as well as the various circuits in the dynamo room and testing laboratory. Wire and water rheostats are arranged for load and regulation. Portable lamp-boards are so arranged that they may receive, at the proper voltage, from 0.04 to 100 amperes current. Portable ammeter, voltmeter and wattmeter switchboards have been constructed for use in machine tests. In addition to the special electrical engineering equipment, the College lighting plant will be used for illustrative and experimental purposes. This plant contains, together with other apparatus useful in teaching electrical engineering, two Bullock generators of 40 kilowatts total capacity, and a switchboard equipped with a number of Weston ammeters, voltmeters and circuit breakers, and various types of rheostats.

An 8-inch Waltham bench lathe, with all the necessary attachments, has been installed in the dynamo room for the use of students in practical thesis work, and for making small articles, such as binding posts, connectors, etc., for use in the laboratories.

The telephone laboratory is equipped with two demonstration sets which were made by the Western Electric Co.

The magneto set consists of an oak panel upon which is mounted the following apparatus: Two line circuits with combined jacks and signals; double wound supervisory drops; complete cord circuits including ringing and listening keys, operator's telephone set, magneto generator, etc. On one line circuit is connected a wall type subscriber's set, and on the other, a desk set.

The common battery set consists of an oak panel carrying the following equipment: Two line circuits with lamp signals; com-

plete cord circuits, including ringing and listening keys, operator's telephone set, magneto generator, split repeating coils, condensers, retardation coil, supervisory lamp, etc. On one of the line circuits is connected a wall type subscriber's set, and on the other a desk set.

Both panels have all the wiring exposed to enable the student to make a complete study of these two principal types of telephone exchanges.

COURSES OFFERED.

The subjects outlined constitute the work in electrical engineering.

180. ELEMENTARY ELECTRICITY. This subject includes static electricity, dealing with the phenomena of electricity in its potential form, and the conception of electric potential, quantity, capacity, etc.; kinetic electricity, including the study of the fundamental laws and units, as Ohm's Law, Joules' Law, units of current, electromotive force, resistance, etc.; theory of magnetism, with its phenomena and forces; and electro-magnetism, which is the foundation for dynamo electric machine design and construction.

Text: Nichols and Franklin's "Electricity and Magnetism."

Sophomore Year—Second and Third Term, 3 theoretical and 2 practical periods per week.

181. ELEMENTARY ELECTRICITY AND MAGNETISM. This subject is given to enable the student to gain a general knowledge of the applications of electricity to commercial work, and deals very little with the mathematical theories of the various laws and principles. The subject includes a study of the methods of generating, distributing and utilizing electrical energy for practical purposes, and is intended to make the student familiar with modern electrical apparatus and machinery.

Text: Jacksons' "Elementary Electricity and Magnetism."

Sophomore Year—Third Term, 2 theoretical periods per week.

182. ELECTRO-MAGNETISM AND CONSTRUCTION OF DYNAMOS. Beginning with the Junior Year and extending throughout the course, the principles involved in the construction and operation of both direct and alternating current dynamos and motors are

taught. In teaching this subject, special care is exercised that the mathematical and graphical developments shall be concise and logical. The direct current machine is first examined, and this results in a discusion of the different forms of armatures, their windings, cores, commutators, etc.; the various fields; the methods of arranging the windings for different purposes; the shape and material of the magnetic circuits; the bearings, shafts, and bed-plates; the methods of insulation; a full description of the materials of construction; the selection of types suited to the performance of specific duties; and the proper method for installing and operating. The characteristic curves and efficiencies of the different types are also illustrated at some length.

Text: Franklin and Esty's "Dynamo Electric Machinery."

Junior Year—First and Third Term, 3 theoretical periods per week; Second Term, 4 theoretical periods per week.

183. Electrical Engineering Laboratory. The study of direct current instruments. The measurements of resistance, current, and electromotive force; the use of the Wheatstone Bridge and galvanometers; loop and capacity tests of cables; calibration of instruments; study of direct current machines; testing of arc lamps; photometry; the operation of machinery and determination of the characteristic curves and efficiencies of machines.

Junior Year—6 practical periods per week.

184. Primary and Secondary Batteries. The theories involved in the primary cell are developed and attention is directed to the various measurements and calculations pertaining to the subject. A study is made of the construction and use of the latest types of commercial cells.

Following the preliminary work on the primary cell, the study of the lead storage battery is taken up in detail. The work includes the general theory, the mechanical construction and the commercial use of the various types of cells, together with the chemical and electrical actions encountered. In connection with the storage cell a study is made of the construction and use of the different forms of the auxiliary apparatus, such as end-cell switches, boosters, etc.

Text: Lyndon's "Storage Battery Engineering."

Junior Year—Third Term, 2 theoretical periods per week.

185. Electric Machine Design. Practical calculation of dynamos, including detail calculations of field cores, armature windings, frames, commutator, armature core and collecting devices.

Junior Year—Third Term, 6 practical periods per week.

Senior Year—First Term, 6 practical periods per week.

186. Alternating Currents and Alternating Current Machinery. A complete study is made of the fundamental phenomena and theories dealing with the effects of alternating currents, both single-phase and poly-phase. Included in this course there are a large number of problems, both analytical and graphical, which are specially valuable for giving a clear appreciation of the effects of self-inductance, mutual-inductance, and capacity in single-phase and poly-phase alternating current circuits.

The theory, construction and practical applications of single-phase and poly-phase alternating current machinery, which includes generators, synchronous, induction and repulsion motors, rotary convertors, transformers, regulators, etc., are taken in detail.

The fundamental principles of the machinery are developed in the class-room and applied concurrently in the laboratory and designing room with special reference to their practical utilization.

Texts: Franklin and Esty's "Alternating Currents," McAllister's "Alternating Current Motors," and Karapetoff's "Electric Circuit."

Senior Year—First and Third Term, 5 theoretical periods per week; Second Term, 3 theoretical periods per week.

187. Electrical Engineering Laboratory. The determination of inductance, impedance, condensance, etc.; measurement of power in alternating current circuits; regulation and efficiency tests of alternators and transformers; parallel operation of alternators; phase characteristics, power factor, etc., of synchronous motors; polyphase transformation; mesh and star connections of transformers; tests of induction and synchronous motors.

Senior Year—First and Second Term, 8 practical periods per week; Third Term, 6 practical periods per week.

188. Electric Lighting and Power Plants. This work begins with the study of the different systems of distribution used in arc and incandescent lighting, and the discussion of the advantages

and disadvantages of each from both financial and engineering standpoints. Attention is given to the best methods of obtaining good regulation, as upon this satisfactory lighting service depends. The proper arrangement and wiring of switchboards and the instruments which they contain, as well as the latest methods of protection from lightning, are treated in detail.

The student is made familiar with the manufacture and characteristics of the incandescent arc and many new forms of electric lamps; the selection of lamps for specific commercial duties; the principles underlying correct interior and exterior illumination; the manufacture of cables for underground work; and the materials used in overhead and conduit systems of distribution.

The proper arrangement, the type and the size of boilers, engines and dynamos in a central station for lighting and power purposes, are obtained by the study of typical plants in this country and abroad. Many problems involving the calculation of the wire and materials needed for the various system of distribution are given. These problems require for their solution a knowledge of the rules of the Underwriters' Association.

Text: Franklin's "Electric Lighting."

Senior Year—First Term, 3 theoretical periods per week.

189. Electric Power Plants and Transmission. A study of the principles underlying the lay-out of power-house and sub-station machinery and circuits for high tension transmission and distribution systems, including the determination of the most economical size of conductors for such systems. The course includes numerous original and practical problems illustrating the principles.

Senior Year—Second Term, 3 theoretical periods per week.

190. Telephones and Telegraphs. This subject deals with the applications of electricity to telephony and telegraphy, with the details and construction of the instruments, switchboards and line work. In this course are included a study of telephone receivers and transmitters; the multiple switchboard; common battery circuits; manual and automatic exchanges; traffic regulation; intercommunicating systems; line construction; the effects of self-inductance, capacity and other disturbing influences; location of faults; simplex, duplex and quadruplex telegraphy; wireless telegraphy; and simultaneous telegraphy.

Text: Miller's "American Telephone Practice."

Senior Year—Second and Third Term, 2 theoretical and 2 practical periods per week.

191. Electric Machine Design. This work includes the design of reactance coils, transformers, induction motors, alternator armatures, field windings and frames, and special problems in the transmission of power.

Senior Year—Third Term, 1 theoretical and 6 practical periods per week.

192. Electric Railway Engineering. The student is made thoroughly familiar with the following topics relating to electric railway work; the power, capacity, arrangement and methods of installation of the engines and boilers; the type, method of control and disposition of the generators in the dynamo room; the proper arrangement of the switchboards and the instruments to be used; the line work, including the various trolley and conduit constructions; the method of laying the track, with the weight and bonding of the rails; the motor equipment and car wiring; the type, power and control of the motors and the requirements for special conditions; the applications of the storage battery; the cost of installation and operation of the power plant; the management of the plant; and the modifications required for high speed electric traction.

Text: Sheldon and Hausman's "Electric Traction and Transmission Engineering."

Senior Year—Third Term, 3 theoretical periods per week.

193. Thesis. During the Senior Year each student is required to prepare a graduation thesis. In the preparation of the thesis the student is given the opportunity to apply his training to original research.

Senior Year—Second and Third Term, 4 practical periods per week.

PHYSICS.

The physical lecture room and laboratory are located in the new engineering building, in rooms excellently adapted to the purpose.

The Department is well supplied with apparatus for lecture room demonstrations and for students' individual laboratory work, and new pieces of apparatus are added to the equipment each year.

COURSES OFFERED.

200. ELEMENTARY PHYSICS. The course consists of lectures, recitations and experimental demonstrations by the instructor on mechanics, hydrostatics, sound, heat, light, electricity and magnetism. The student is required to work a number of problems, and his attention is directed to the practical application of the principles studied.

Text: Carhart & Chute's "Principles of Physics."

Sub-Freshman Year—3 theoretical periods per week.

201. PHYSICS. The course begins with a review of mechanics, after which heat, electricity and magnetism, sound and light, are taken up successively by lectures, recitations, problems and demonstrations. A knowledge of the elements of plane trigonometry is required for entrance. The laboratory work consists of a series of experiments, mainly quantitative, designed to illustrate and verify the laws and principles considered in the class-room and to develop in the student skill in manipulation and accuracy in making precise measurements.

Texts: Carhart's "College Physics" and Ames and Bliss' "Manual of Experiments in Physics."

Sophomore Year—First Term, 3 theoretical and 2 practical periods per week; Second and Third Term, 3 theoretical and 4 practical periods per week.

202. PHYSICS. Advanced work will be provided for students who have completed the preceding courses, and who wish to continue the study of physics.

ENGLISH AND PUBLIC SPEAKING.

PROFESSOR RICHARDSON.

MR. BYRD.

This Department, as its name implies, covers the work of two closely allied branches.

The course in English, of a necessity, lies at the base of all other courses of instruction. Clear and comprehensive knowledge of his mother tongue is absolutely necessary to the student in pursuing any line of college work. Nor is this all; for aside from the practical value of the English instruction as an aid to other branches of study, and as a preparation for business and profession, it is to his training in this Department, in connection with his study of history, the classics and modern languages, that the student must look for the acquiring of the general culture which has always been the distinguishing mark of the liberally educated man. The English work, which is common to all courses, consists of the study of the structure of the English language, English and American literature, theoretical and practical rhetoric, critical reading and analysis, and constant exercise in expression, composition and theme writing.

The work in public speaking is begun with easy lessons in elocution, and this is continued until the student has acquired a mastery of vocal expression, and a pleasing and forcible delivery. The student is then required to deliver both extempore and prepared speeches and debates, covering a wide range of subjects, in this way not only securing practice in delivery, but also developing the power of logical thought.

COURSES OFFERED.

220. PREPARATORY ENGLISH. Technical grammar, spelling and composition writing.

Text used: Maxwell's "Exercise in English."

Preparatory Year—5 theoretical periods per week.

221. PUBLIC SPEAKING. Such instruction and practice as will enable the students to read correctly and intelligently.

Preparatory Year—2 practical periods per week.

222. SUB-FRESHMAN ENGLISH. Thorough review of technical grammar, practical word analysis, composition and letter writing.

Texts used: Marshall's "Business Speller" and Hitchcock's "Enlarged Practice Book in English Composition."

Sub-Freshman and First Year—5 theoretical periods per week.

223. Public Speaking. Review of work in the Preparatory Year and declamations of simple selections.

Sub-Freshman Year—2 practical periods per week.

224. Farm Literature. A reading course in farm periodicals and other agricultural literature, with instruction in the taking and systematization of notes. This course is also open as an elective to the Short Winter Course students during their stay at the College.

First and Second Year—2 practical periods per week.

225. Composition. Practice in English composition. Work consists of twelve themes, discussing subjects involved in special technical work.

Second Year—1 theoretical period per week.

226. Rhetoric, Composition and Public Speaking. A study of the principles and practice of rhetoric and composition. Work in rhetoric consists of a study of diction, the sentence, the paragraph, the discourse, the nature and structure of prose and poetry. Work in composition consists of twelve themes, especially adapted to the needs of the class.

The work in public speaking is a part of the English course, and consists of readings and declamations given for the purpose of developing within the student the ability to understand what he reads, and the power to interpret the author's meaning.

Text used: Brooks & Hubbard's "Composition and Rhetoric," Hart's "Rhetoric," Swinton's "Word Analysis."

Freshman Year—4 theoretical and 2 practical periods per week.

227. Composition. Practice in English composition. Special lectures. Preparation of twelve themes on selected subjects.

Sophomore Year—1 theoretical and 2 practical periods per week.

228. Public Speaking. Lectures on ancient and modern orators, with readings and declamations from their orations. Extempore speeches. Original orations on subjects requiring careful and intelligent research. Debates.

Sophomore Year—2 practical periods per week.

229. American Literature. A study of the most important American writers and their works, with selected readings.

Aside from giving an accurate knowledge of American literature, this course is specially intended to increase the vocabulary of the student, promote facility of expression, and develop the power of original thought.

Text used: Halleck's "American Literature," Bronson's "American Poems."

Sophomore Year—First and Second Term, 2 theoretical periods per week.

230. ENGLISH LITERATURE. A study of the history of English literature and the lives of the principal writers, with selected readings from English authors, orators and poets.

Text used: Long's "English Literature," Newcomer and Andrew's "Twelve Centuries of English Poems and Prose."

Sophomore Year—Third Term, 2 theoretical periods per week.

Junior Year—First and Second Term, 2 theoretical periods per week.

231. ADVANCED COMPOSITION. Advanced work in English composition. Nine themes, six of which will be connected with the student's technical work. In theme writing the different technical departments and the English department work conjointly.

Junior Year—First and Second Term, 1 theoretical and 2 practical periods per week; Third Term, 1 theoretical period per week.

232. PUBLIC SPEAKING. Writing and delivering original speeches on subjects specially adapted to the future requirements in the vocation of the student. Debates on current subjects.

Junior Year—2 practical periods per week.

233. ENGLISH. Special topics given to students in the General Science Course.

Junior Year—First Term, 2 practical periods per week; Second Term, 1 theoretical and 2 practical periods per week.

234. PUBLIC SPEAKING. Special work given to students in the General Science Course.

Junior Year—Third Term, 1 theoretical period per week.

235. ENGLISH COMPOSITION. Special themes illustrating the principles of debate, oration and short story.

Senior Year—1 theoretical period per week.

236. Public Seaking. Individual instruction in writing and delivering orations and debates. Elective.

Senior Year— 4 theoretical periods per week.

237. Advanced English Literature. Detailed study of the literature of the nineteenth century. This course is offered to students in the General Science Course. Elective.

Senior Year—4 theoretical periods per week.

ENTOMOLOGY AND ZOOLOGY.

PROFESSOR SYMONS.
ASSOCIATE PROFESSOR CORY.

Instruction is given in this Department with a view first, to giving the student the general knowledge of invertebrate and vertebrate zoology, which is necessary as a foundation science for an agricultural education; second, to fit the student in elementary and advanced entomology, both economic and systematic, so that he may pursue this specialty after graduation. A course in economic entomology and zoology is also given to provide those students who are specializing in any of the allied agricultural sciences, with the information which is essential to their ideal development.

Students who intend to enter the medical profession or work in public health and sanitation will find in the Biological Course the work which will give them the best possible preparation for those professions.

Students wishing to take advanced work in invertebrate zoology are advised to select some subject in entomology. As the State and Experiment Station entomological work is conducted through this Department, there are special advantages for students in applied entomology.

The reference library is unusually complete, containing in addition to the standard works, a majority of the principal entomological and zoological publications. The laboratory is supplied with

a large collection of insects for the use of students, and is well equipped with microscopes and other apparatus necessary for practical work in entomology and zoology.

The glass and screen insectaries of the State Horticultural Department and the Maryland Experiment Station are joined to the laboratory, and afford facilities for special investigation to a limited number of advanced students. In addition, a greenhouse 50 x 20 in the new range of houses has been set aside for entomological work.

A laboratory of the Bureau of Entomology has been established at the Experiment Station. The Parasitologist in charge is available for consultation by students specializing in parasitic Hymenoptera.

COURSES OFFERED.

240. Animal Life and Elementary Entomology. A consideration of animals and insects from a nature study standpoint. These courses are designed to show the student the importance of these subjects and to develop and foster an interest in nature.

Preparatory Year—First Term, 2 practical periods per week.

Sub-Freshman Year—Third Term, 2 practical periods per week.

241. General Zoology. This course is offered to all students taking agriculture and allied sciences, and is introductory to all other work in this Department. A study is made of the general form, characteristics, habits and classification of animals from the lowest to the highest forms. It is designed to give the student that knowledge of animal life without which his education is incomplete.

Freshman Year—First Term, 2 theoretical and 4 practical periods per week.

242. Invertebrate Zoology. In this course a thorough study will be made of the anatomy, development and classification of invertebrate animals. Special attention is given to those forms which are intimately associated with the development of allied sciences.

Sophomore Year—First and Second Term, 2 theoretical and 4 practical periods per week.

243. General Entomology. This course is offered all students who have completed course 241. It consists of a study of insects, their classification, structure and relation to man. The practical work will consist of laboratory studies of the structures of typical forms, and a study in the field of the habits of insects, particularly those which are injurious to crops.

As an aid to this study, the student is required to make a collection of the more common insects which appear in the spring.

Sophomore Year—Third Term, 2 theoretical and 4 practical periods per week.

244. Economic Entomology. This course will embrace a detailed study of the life histories of insects of economic importance and the most approved means of control. Practical work will be given in the preparation and application of insecticides and the operation of spraying machinery, of which the Department has a large assortment.

Junior Year—First Term, 2 theoretical and 4 practical periods per week.

245. Economic Entomology. This course is an expansion of course 244 and is required of students in the Biological Course specializing in entomology.

Junior Year—First Term, 1 theoretical and 4 practical periods per week.

246. Vertebrate Zoology. A thorough study of the structure, development, classification and distribution of vertebrates is made in this course. Special attention is given to birds and other vertebrates of economic importance.

Junior Year—First Term, 1 theoretical and 6 practical periods per week; Second Term, 1 theoretical and 4 practical periods per week.

247. Systematic Entomology. This is designed for students in the Biological Course specializing in entomology. It will consist of a comparative study of insect structures, particularly those used in the arrangement of insects into natural groups.

Junior Year—Second Term, 1 theoretical and 4 practical periods per week; Third Term, 2 theoretical and 4 practical periods per week.

248. Systematic Entomology. This course is an expansion of course 247 and is required of students in the Biological Course specializing in entomology.

Junior Year—Third Term, 1 theoretical and 4 practical periods per week.

249. Farm Zoology. This course is offered to students in the First Year of the two-year courses. It includes a study of reptiles, birds, mammals and other animals of economic importance which commonly occur on the farm.

First Year— Third Term, 2 theoretical periods per week.

250. Insecticides and Spraying. Special attention is given in this course to the principles involved in the application of insecticides. A study is made of the different insecticides and spraying apparatus on the market. In the practical work an opportunity will be given to observe and operate a large number of the spraying machines and apparatus which are offered for sale. A special spraying laboratory has been fitted for students taking this course.

Second Year—Second Term, 2 theoretical and 2 practical periods per week.

251. Insect Pests. This course is designed for students in the two-year courses and the various short courses, previous courses in entomology not being prerequisite. The course includes a study of insects from the standpoint of general farm practice.

Second Year—Third Term, 2 theoretical and 4 practical periods per week.

252. Advanced Entomology. This includes courses open to students specializing in entomology.

(a) Insect Anatomy. A study is made of methods of insect histology in connection with a study of the gross and microscopic anatomy of the body of an insect.

(b) Wing Venation. This course involves a study of the homologies of the wing veins of the several groups of insects, showing how the natural relation of those groups may be traced by means of the veins.

Additional elective courses for students in the Biological Course and for post-graduate students are offered in Insect Taxonomy,

Morphology and Ecology, Experimental Methods and Insect Delineation.

Senior Year—7 theoretical and 12 practical periods per week.

253. Applied Entomology. This course is given students in the Horticultural Course who have completed course 244. It includes a more detailed study of some of the insects with which the trained horticulturist will have to deal, a consideration of the spraying methods used in large fruit plantings, and the control of insect pests in greenhouses and florists' establishments.

Senior Year—Third Term, 2 theoretical and 4 practical periods per week.

254. Animal Parasites. This course is designed especially for students specializing in animal husbandry. The course involves a discussion of the life history and habits of the more important internal and external parasites of domestic animals. It also includes a study of the treatment employed in the control of these pests.

Senior Year—Third Term, 2 theoretical and 4 practical periods per week.

255. Entomological Research. Independent research on some definite problem in entomology, the results of which are usually incorporated in the graduation thesis.

Senior Year—1 theoretical and 4 practical periods per week.

HORTICULTURE.

PROFESSOR SYMONS.
PROFESSOR BECKENSTRATER.
PROFESSOR MONROE.
DR. BESLEY.
ASSOCIATE PROFESSOR ANSPON.
MR. BURRELL.

Recognizing the great importance of every phase of this subject in the State, a SCHOOL OF HORTICULTURE has been formed in conjunction with the State Horticultural Department, with a view of offering instruction to students desiring to specialize in either Pomology, Vegetable Culture or Landscape

Gardening and Floriculture. The courses in this subject have been therefore revised, providing for general courses in all phases of Horticulture during the Freshman and Sophomore years and permitting them to specialize in either of the above subjects in the Junior and Senior years.

The arrangement of the courses is, of necessity, subject to such adjustment as will advance the best interests of the students. The object in each course will be to give practical and theoretical training in fruit growing, truck farming and commercial landscape gardening and floriculture. Under the present arrangement the specialists in each subject will have greater opportunity to keep familiar with the progress of their work through the practical demonstration and experimental work in the State. Where one man has been required to give all the instruction in horticulture heretofore, four men are now available to give a part of their time to this important work.

The students will be required to do practical work throughout the course, and in addition, they must have spent at least two summers or the equivalent, during the four years' course, in an approved commercial establishment dealing with the subject in which they are specializing. The equipment of each Department is being steadily increased and the orchards, gardens and greenhouses of College and Experiment Station afford unlimited opportunities for practical observation. In addition, the students of each course will be expected to take trips to selected commercial orchards, truck farms, greenhouses and markets.

The SCHOOL OF HORTICULTURE offers two regular courses: (a) A four-year course leading to the degree of Bachelor of Science; (b) a two-year course for proficiency in which a Certificate is awarded.

The work given in the two-year course will also be more efficient, as for the most part the courses will be given separately from those of the regular four-year students. These students will also have an opportunity to specialize in any phase of horticulture in which they are interested during their second year.

POMOLOGY.

260. Introductory Horticulture. This is an introductory course designed to acquaint the student with the materials and problems with which horticulture deals, and to present to the prospective student the field of horticulture as a possibility in which he may find a future career.

Preparatory Year—Third Term, 2 practical periods per week.

261. Elementary Pomology. An introductory course dealing with the principles of the subject. It is intended for all students in agriculture and horticulture, and is prerequisite to all the courses in pomology. Lectures, recitations and practical exercises.

Freshman Year—Third Term, 2 practical periods per week.

First Year—First Term, 2 theoretical and 4 practical periods per week.

262. Principles of Pomology. A continuation of course 261. A study of the methods of propagation, pruning and planting.

Sophomore Year—First Term, 2 theoretical and 4 practical periods per week.

First Year—Second Term, 2 theoretical and 4 practical periods per week.

263. Principles of Small Fruit Culture. An elementary course dealing with the general principles of small fruit growing, including a study of cultural requirements, propagation and the relative importance of the different small fruits for home use and market.

Sophomore Year—Second Term, 2 theoretical and 2 practical periods per week.

264. Commercial Pomology. This course considers the harvesting, packing, storing and marketing of fruits. Special stress is given to transportation and market problems. The leading commercial varieties of fruits are also studied. Lectures, recitations and practical exercises.

Junior and Second Year—First Term, 2 theoretical and 2 practical periods per week.

265. Practical Small Fruit Culture. Practical directions for the production and handling of strawberries, grapes and bush

fruits for home use and market, including a study of crop rotation and fertilization.

Junior Year—Second Term, 2 theoretical and 4 practical periods per week.

First Year—Third Term, 2 theoretical and 2 practical periods per week.

266. Practical Pomology. A study of the orchard sites, soils, varieties and planting plans for the orchard; cultivation, cover crops, fertilizers and pruning as practiced in commercial orchards.

Junior Year—Second Term, 2 theoretical and 4 practical periods per week; Third Term, 2 theoretical and 2 practical periods per week.

Senior Year—Second Term, 1 theoretical and 6 practical periods per week.

267. Commercial Small Fruit Culture. A study of methods of harvesting, packing and marketing small and bush fruits and grapes. Special attention is given market problems and shipping associations.

Junior Year—Third Term, 2 theoretical and 4 practical periods per week.

268. Systematic Pomology. This course embraces a study of the evolution and relationship of the economic fruits. It includes descriptions of fruit and the identification of the more common varieties of Maryland. Fruit judging and the selection of fruits for exhibition purposes are also considered. Lectures, recitations and practical exercises.

Senior Year—First Term, 2 theoretical and 4 practical periods per week; Second Term, 1 theoretical and 4 practical periods per week.

269. Viticulture. A course in commercial vineyarding, including a consideration of sites, soils, propagation, pruning, training and cultural methods. Also a study of the manufacture of unfermented grape juice and wine-making.

Senior Year—First Term, 2 theoretical and 2 practical periods per week.

270. Literature of Fruit Growing. History and growth of horticultural writings. A study of important publications, current horticultural periodicals and methods of research.

Senior Year—Second Term, 1 theoretical and 2 practical periods per week.

271. Nut Culture. This course is designed to cover the subject in a general way; it includes the propagation, orchard management and marketing of the leading American nuts.

Senior Year—Second Term, 2 theoretical and 2 practical periods per week.

Second Year—Second Term, 2 theoretical periods per week.

272. Citrus and Sub-Tropical Fruits. A general course in citrus and sub-tropical fruits of commercial importance.

Senior Year, Second Term, 3 theoretical periods per week.

273. Plant Breeding. A general course in the science and art of plant breeding. Observed factors in organic evolution, variation and heredity are considered in so far as they have a bearing upon this subject. The discussion of the various methods of breeding and improvement are accompanied by practice in the orchard and greenhouses.

Senior Year—Second Term, 2 theoretical periods per week; Third Term, 2 theoretical and 2 practical periods per week.

274. Advanced Small Fruit Culture. A continuation of course 267, taking up the history, evolution and location of the principal small fruit sections, and a discussion of varieties, planting, training, care and fertilization.

Senior Year—Third Term, 2 theoretical and 2 practical periods per week.

275. Advanced Pomology. Special problems in adaptation, propagation, cultivation anad pruning as they arise in commercial orchards.

Senior Year—Third Term, 2 theoretical and 2 practical periods per week.

276. Research Work and Thesis. This course is given to test and develop the student's power of observation and initiative. The work will be arranged with each student, individually, and the re-

sults will be written up in form of a thesis, which is required of all candidates for the Bachelor of Science Degree.

Senior Year—First Term, 2 practical periods per week; Second and Third Term, 6 practical periods per week.

277. POST-GRADUATE WORK. An opportunity for advanced work is given to candidates who have the Bachelor of Science Degree.

VEGETABLE CULTURE.

280. VEGETABLE GARDENING. This course includes the general principles of vegetable culture, and a study of the home garden. The home garden is studied specially, because students in other departments do not get another opportunity to take up this work.

Freshman Year—Second Term, 2 practical periods per week.

First Year—Second Term, 1 theoretical and 4 practical periods per week.

281. PRACTICAL VEGETABLE GROWING. A course designed to carry out as far as possible in a practical way the different phases of vegetable culture. The student will be expected to assist in starting plants under glass and growing crops in the field.

Sophomore Year—Third Term, 1 theoretical and 4 practical periods per week.

282. VEGETABLE GROWING UNDER GLASS. The use of the different glass structures in vegetable culture. Forcing vegetables and growing winter crops in the greenhouse.

Junior Year—First Term, 1 theoretical and 4 practical periods per week; Second Term, 2 theoretical and 8 practical periods per week; Third Term, 6 practical periods per week.

Second Year—First Term, 2 theoretical and 4 practical periods per week; Second Term, 4 practical periods per week.

283. LITERATURE OF VEGETABLE CULTURE. History and development of vegetable crops. The methods of breeding used in bringing about this development. A study of current vegetable publications.

Junior Year—Second and Third Term, 2 theoretical periods per week.

284. Vegetable Culture and Its Relation to the Canning ndustry. Special reference to the vegetable crops and varieties rown for canning.

Junior Year—Third Term, 2 theoretical periods per week.

Second Year—First Term, 2 theoretical periods per week.

285. Market Gardening. A continuation of courses 280 and 281. Prerequisites, courses 280 and 281. This course includes rowing, harvesting, grading, packing and marketing commercial egetable crops. It also includes a systematic study of some of he more important commercial varieties. Whenever possible, trips vill be made to markets and vegetable farms.

Senior Year—First Term, 2 theoretical and 6 practical periods per week; Second Term, 6 theoretical and 12 practical periods per week; Third Term, 6 practical periods per week.

Second Year—Third Term, 4 practical periods per week.

286. Experimental Vegetable Culture. A study of Experiment Station methods. The planning of definite experiments and estimating approximate requirements for carrying on vegetable experiments.

Senior Year—Third Term, 2 theoretical and 4 practical periods per week.

287. Research and Thesis. The prime object of this work is to test the student's power of observation and initiative. The individual student will be required to select some special line of research in vegetable culture and submit the same to the head of the Department for approval not later than April first of the Junior Year. The results must be written up for a thesis required for graduation.

Senior Year—First Term, 1 theoretical and 4 practical periods per week; Second Term, 2 theoretical and 12 practical periods per week; Third Term, 1 theoretical and 8 practical periods per week.

LANDSCAPE GARDENING AND FLORICULTURE.

300. Principles of Landscape Gardening. An elementary course dealing with the principles of landscape gardening and their application to home grounds.

Freshman Year—First Term, 1 theoretical and 2 practical perio per week.

First Year—First Term, 2 theoretical and 2 practical perio per week.

301. Ornamentation of Home Grounds. Continuation c course 300. This course deals more in detail with the beautifyi of home surroundings.

Sophomore and Second Year—Second Term, 2 theoretical perio per week; Third Term, 4 practical periods per week.

302. Greenhouse Management. This course is devoted to t soil, culture and methods of handling greenhouse crops.

Junior and Second Year—First Term, 2 theoretical and 2 pra tical periods per week.

303. Floral Decoration. The use of cut flowers and plan in decorations, baskets and designs.

Junior Year—Second Term, 2 practical periods per week.

304. Floriculture. Forcing plants and flowers for wholesa and retail markets; methods of handling and marketing the crop

Junior Year—Second and Third Term, 2 theoretical and 4 pra tical periods per week.

Second Year—Third Term, 2 theoretical and 4 practical perio per week.

305. Greenhouse Construction. A study of the types houses, cost, materials and methods of heating and ventilating us for growing plants.

Junior Year—Second Term, 2 theoretical and 2 practical perio per week.

Second Year—First Term, 2 theoretical and 2 practical perio per week.

306. Plant Materials. This course comprises a study of t characters, habits, culture and suitability for landscape work trees, shrubs and perennials, together with their planting and a rangement.

Junior and Second Year—Third Term, 2 theoretical and 2 pra tical periods per week.

307. Tree Surgery. A course in the treatment of trees and ırubs, including technical details in pruning to control insect ıemies and fungus diseases.

Senior Year—First Term, 1 theoretical and 4 practical periods ɛr week.

308. Landscape Design. A course dealing with the composi-ɔn of public parks and private grounds, with practical work in anning and designing.

Senior Year—First Term, 2 theoretical and 6 practical periods ɛr week.

309. Civic Art. This course deals with the principles of land-ɛape gardening as applied to city, village and rural design and im-ɔvement.

Senior Year—Second Term, 2 theoretical and 2 practical periods ɛr week.

310. Planting Plans. This course deals with planting de-gns and plans, and detailed planting plans for public and private ɔunds.

Senior Year—Second Term, 2 theoretical and 6 practical periods ɛr week.

311. Aesthetics of Landscape Gardening. A course dealing ith the underlying principles designed to give the student a broad ɔnception of the art.

Senior Year—Second Term, 2 theoretical periods per week.

312. Landscape Practice. This course takes up the study of ɛading plans and working drawings, together with specifications ıd contracts.

Senior Year—Second Term, 2 theoretical and 8 practical periods ɛr week.

313. History and Literature of Landscape Gardening. A ɛference course dealing with the literature and the different stages f development of the art.

Senior Year—Third Term, 2 theoretical periods per week.

314. Garden Flowers. A course in annuals, herbaceous per-ınniels, bulbous plants, and shrubs used in ornamental plantings ıd for cut flowers.

Senior Year—Third Term, 2 theoretical and 4 practical perio per week.

315. FLORICULTURE. This course, which is given to studer in the Agricultural Education Course, includes window gardenin culture of flowers upon home grounds, soils, fertilizers, pottir and shifting of plants, and the use of cut flowers in table decoratior

Senior Year—Third Term, 2 theoretical and 2 practical perio per week.

316. RESEARCH AND THESIS. The designing, planning and d tail planting of some practical landscape problem, or some speci phase of floriculture.

Senior Year—Second Term, 2 theoretical and 4 practical perio per week; Third Term, 12 practical periods per week.

FORESTRY.

The instruction in forestry is planned to give to the student, wl is fitting himself to take up the practical problems of farm manag ment, a sufficient knowledge of the principles of forestry to enal him to apply to the wood lot or timber tract, which is a part practically every farm, the same degree of intelligent directi which he is prepared to give to the tilled lands and thus obta equally satisfactory results.

The following course is offered:

320. FARM FORESTRY. This course includes forest botan wood-management, measurement, valuation and utilization of fore crops, fire protection, nursery practice and tree planting. Lectur and field work.

Senior and Second Year—Third Term, 2 theoretical and 4 pra tical periods per week.

LANGUAGES.

PROFESSOR SPENCE.

MR. HARGROVE.

The Department of Languages embraces the study of thr branches: Latin, German and French. All students are requir

o take the courses in German or French. Students may elect to ake Latin in the Freshman Year in place of History, provided that hey have completed the work outlined for the Sub-Freshman Class r its equivalent.

The course of study in Latin is given with two ends in view—irst, to train the mind into accurate and close methods of reasoning; second, to give the student a more thorough and comprehensive knowledge of his own language than he could otherwise acuire. Special attention is paid to Latin forms and terminations nd to the derivation of English words from Latin roots.

So large a proportion of modern scientific literature is in German and French that a reading knowledge of these languages has ecome almost essential to the student pursuing advanced courses n the various spheres of scientific research. Instruction in these ranches is given, therefore, to enable the student to translate intelligently the works of French and German masters in the domain f science, for, frequently there are no English versions of their works. As the student becomes more familiar with foreign scientific terms and construction, he is required to translate treatises earing upon the special line of work which he may be pursuing.

LATIN.

COURSES OFFERED.

340. GRAMMAR AND COMPOSITION. The aim of this course which is given in the Preparatory Year, is to make the student onversant with Latin forms and terminations, and to enable him o read simple Latin prose.

Text-books: Collar and Daniel's "First Year Latin," or Bennett's First Year Latin."

Preparatory Year—4 theoretical periods per week.

341. SYNTAX AND TRANSLATION. Reading of Cæsar and Sallust with prose composition selected from the text read.

Text-books: Smith's "Latin Lessons," Harper and Tolman's Commentaries of Caesar," and Scudder's "Sallust."

Sub-Freshman Year—3 theoretical periods per week.

Freshman Year—3 theoretical periods per week.

342. Mythology, Translation and Literature. Reading o Virgil and Horace with lectures on mythology and Latin literature Elective.

Text-books: To be selected later.

Sophomore Year—4 theoretical periods per week.

GERMAN.

COURSES OFFERED.

360. Grammar and Conversation.

Text-book: Bacon's "German Grammar."

Freshman Year—3 theoretical periods per week.

361. Translation.

Text-books selected from the following: Hauff's "Das Kalt Herz," Schiller's "Der Neffe als Onkel," Wildenbruch's "Das Edl Blut" and "Der Letzte," Hillern's "Hoher als die Kirche," Grand gent's "Ali Baba and the Forty Thieves," Sybel's "Die Erhebun Europas," Walther's "Algemeine Meereskunde," Brant and Day' "Scientific German," Wallentin's "Grundzuge der Naturlehre," Mo ser's "Der Bibliothekar."

Sophomore Year—3 theoretical periods per week.

362. Translation. Selected readings from various literar and scientific texts and periodicals.

Junior Year—3 theoretical periods per week.

Senior Year—4 theoretical periods per week.

FRENCH.

COURSES OFFERED.

380. Grammar and Composition.

Text-book: Chardenal's "Complete French Course" (Revised) Aldrich & Foster's "Elementary French" and "French Reader," Super's "French Reader," and selected texts.

Freshman Year—3 theoretical periods per week.
381. TRANSLATION. Selections from standard authors.
Sophomore Year—3 theoretical periods per week.
382. TRANSLATION. Advanced texts. Prose composition.
Junior Year—3 theoretical periods per week.
Senior Year—4 theoretical periods per week.

MATHEMATICS.

PROFESSOR HARRISON.
MR. SPRINGER.

Mathematics is the basis upon which scientific information rests. A knowledge of the study is necessary, as much from the utilitarian point of view as from the mental training its acquisition gives. Its importance as a factor in our College course takes its rise from the former consideration. All instruction in this work is with a view to the equipping of students for the more practical work soon to follow.

The class work in mathematics in the several courses consists of arithmetic, bookkeeping, algebra, geometry (plane and solid), trigonometry, analytic geometry, differential and integral calculus, and their application to mechanics, engineering, physics and surveying.

No matter what vocation a man intends to follow, a knowledge of business forms and methods of systematic accounts is a requisite to success. To be able to use an ordinary compass or transit for the purpose of laying out, dividing and calculating the area of land, or running out lines and leveling for the purpose of drainage, is a necessary accomplishment for every intelligent farmer.

COURSES OFFERED.

400. ARITHMETIC. Review of problems involving mensuration, percentage, interest and proportion.
Text-book: Wentworth-Smith's.
Preparatory Year—2 practical periods per week.

First Year—First Term, 3 theoretical periods per week.

401. BOOKKEEPING. Brief course in double entry.

First Year—Third Term, 4 practical periods per week.

402. ALGEBRA. A thorough course in elementary algebra.

Text-book: Wentworth's.

Preparatory Year—5 theoretical periods per week.

Sub-Freshman Year—4 theoretical periods per week.

403. PLANE GEOMETRY. Books one to five, inclusive.

Text-book: Wentworth's.

Sub-Freshman Year—4 theoretical periods per week.

404. MATHEMATICS. Practical applications of the fundamental laws of elementary mathematics. Lectures will be given on the subjects considered in this course whenever they are deemed necessary.

Freshman Year—First Term, 2 practical periods per week.

405. SOLID GEOMETRY. Books six to eight, inclusive, with selected practical problems.

Text-book: Wentworth's.

Freshman Year—First Term, 4 theoretical periods per week.

406. TRIGONOMETRY. Deduction of formulas and practical applications of same in the solution of right and oblique triangles, etc.

Text-book: Wentworth's.

Freshman Year—Second Term, 5 theoretical periods per week; Third Term, 2 theoretical periods per week.

407. ADVANCED ALGEBRA. Elementary theory of equations, partial fractions, etc.

Text-book: Taylor's.

Freshman Year—Third Term, 3 theoretical periods per week.

408. ANALYTIC GEOMETRY. Geometry of two dimensions, loci of general equations of second order, higher plane curves, etc.

Text-book: Wentworth's.

Sophomore Year—First Term, 5 theoretical periods per week; Second Term, 3 theoretical periods per week.

409. CALCULUS. A discussion of the methods used in differentiation and integration, and the application of these methods in determining maxima and minima, areas, volumes, moments of inertia, etc.

Text-book: Bowser's.

Sophomore Year—Second Term, 2 theoretical periods per week; Third Term, 5 theoretical periods per week.

Junior Year—First Term, 5 theoretical periods per week.

MECHANICAL ENGINEERING.

PROFESSOR GWINNER.
ASSSOCIATE PROFESSOR CRISP.
MR. WARTHEN.

This Department offers a Course in Mechanical Engineering leading to the degree of Bachelor of Science in Mechanical Engineering. The list of all subjects required to be completed to obtain this degree is given on page 108. It prepares young men to design and construct machinery, to superintend engineering establishments, to become superintendents of construction and to teach mechanical engineering and manual training. For degree of Mechanical Engineer see page 125.

The record of its graduates shows that the course is equipping such for immediate usefulness in the technical field.

Instruction is given by means of lectures and recitations, accompanied by a large amount of practice in the drafting rooms, shops and experimental laboratory.

The program of the Department is arranged to embody the twofold belief that a thorough training is best secured by a study of the practical application of the principles involved, as well as of the principles.

EQUIPMENT. The Mechanical Engineering Laboratories are situated in the engineering building, which contains the wood-working and machine shop, drafting and lecture rooms, foundry and blacksmith shops as well as the College power plant.

The wood-working shop contains accommodations for bench work and wood turning. The power machinery in this shop is a band and universal circular saw, five 12-inch turning lathes, one 16-inch by 10-foot pattern maker's lathe, a grindstone, wood trimmer, 26-inch wood planer and universal tool grinder.

In the forge shops are sixteen power forges, two hand forges and a pressure fan and exhauster for keeping the shop free of smoke. There is a full assortment of smith's tools for each forge.

The foundry is equipped with an iron cupola, which melts 1,200 pounds of iron per hour, a brass furnace, one core-oven and the necessary flasks and tools.

The machine shop equipment consists of one 10-inch speed lathe, one 22-inch engine-lathe with compound rest, one 12-inch combined foot and power lathe, two 14-inch engine-lathes, one 24-inch drill press, one No. 4 emery tool grinder, one No. 1½ universal milling machine, and an assortment of vises, taps, dies, pipe-tools and measuring instruments.

The machinery of the pattern and machine shops is driven by a 9 by 14-inch automatic cut off, high speed engine, built by members of the Junior and Senior Mechanical Engineering Classes, after the standard design of the Atlas engine. An 8 by 12-inch engine drives the machinery of the blacksmith shop and foundry. It was presented to the College by the City of Baltimore, and secured through the efforts of Rear-Admiral John D. Ford, United States Navy, retired.

The experimental laboratory contains: A hundred thousand pound Riehle combined hand and power testing machine for making tensile, compression, shearing and transverse tests on various kinds of materials, turbo generator set, consisting of a Curtis steam turbine and thirty-five K. W. General Electric compound wound generator for making steam and electric efficiency tests. This set is connected with the general lighting system of the College so that any time it may be tested to its capacity. It may also be used for lighting purposes if necessary. A cross compound condensing Corliss engine of fifty horse-power, equipped with brake, indicators, relief valves, reducing motion, steam and vacuum gauges, and speed indicator, gives ample opportunity for steam consumption and brake tests. This is connected with the shops, so that any time it may be switched on and drive them. The College power plant with its vacuum heating system, three one-hundred horse-power return tubular boilers, and two electric generating units offer unexcelled opportunities for experimental work.

The three drafting rooms are well equipped for practical work. Two of these are used by the Junior and Senior Classes, each student being provided with a separate desk. The third room is used jointly by the Freshman and Sophomore students and contains eleven drawing tables, accommodating about sixty students.

Engineering students are to provide themselves with approved drawing outfit, materials and book; the cost of which during the Freshman Year amounts to about $15.00. The cost to other students taking mechanical drawing is about $5.00. The College does not furnish these, but they are purchased by the student and are his property.

The combined blue print and dark room with its commodious printing frames affords splendid opportunities for sun printing, which is so useful to engineering students.

Contributions from the following enginering firms have been made to the department during 1913 and 1914:

The V. D. Anderson Co., Cleveland, Ohio. Full size working model of steam trap.

Warren Webster & Co., Camden, N. J. Samples of modulation and vacuum valves and blue prints of heating systems.

C. A. Dunham Co., Marshalltown, Iowa. Samples of vacuum radiator valves.

A. M. Byers Co., Pittsburg, Pa. Sample board illustrating results in different processes of pipe manufacture.

Stewart-Crook Hardware Co., Baltimore, Md. Exhibition case.

Tours of Inspection. The proximity of the College to Baltimore, Washington and Philadelphia, with their great industrial enterprises, offers unexcelled opportunities to engineering students to acquaint themselves practically with what is being done in modern engineering construction. Upon trips of inspection an instructor accompanies the class and explains the different processes, plants and machines.

COURSES OFFERED.

420. Freehand Drawing. Straight and curved lines, leaves, plants and ornaments. Lettering, drawing from geometrical solids and antique fragments in outline, and light and shade.

Preparatory Year—First and Second Term, 4 practical periods per week.

421. SHOPWORK. Exercise in sloyd, chip carving and bent iron work.

Preparatory Year—Third Term, 4 practical periods per week.

422. SHOPWORK. Sheet metal working in brass and iron.

Sub-Freshman Year—First Term, 4 practical periods per week.

423. FREEHAND DRAWING. Technical sketching. Pen and ink shading.

Freshman Year—First Term, 4 practical periods per week.

424. MECHANICAL DRAWING. Practice in plain lettering, use of instruments, projection and simple working drawings, the plates upon completion being enclosed in covers properly titled by the students.

Text-book: Tracy's "Mechanical Drawing."

Freshman Year—4 practical periods per week.

First Year—Second Term, 4 practical periods per week.

425. TECHNICAL INSTRUCTION. Explanation of the reading of mechanical drawings; the proper cutting angles, care and adjustment of carpenter tools; relative strength of wood joints; wood, its shrinking and warping, and how to correct and prevent. Drill in problems in arithmetic, algebra and drawing by notes and lectures.

Text-book: Goss' "Bench Work in Wood."

Freshman Year—First Term, 2 theoretical periods per week.

426. WOOD WORK. During the First Term is taught the use and care of bench tools, exercise in sawing, mortising, tenoning and laying out work from blue prints. The Second Term is devoted to projects involving construction, decoration and wood turning. During the Third Term the principles and process of pattern making are taught, together with enough foundry work to demonstrate the uses of pattern making.

Freshman Year—First Term, 6 practical periods per week; Second and Third Term, 4 practical periods per week.

First Year—Second Term, 4 practical periods per week.

427. DESCRIPTIVE GEOMETRY. Detailing of machinery and drawing to scale from blue prints. Tracing and blue printing, and representation of flat and round surfaces by ink shading. Its rela-

tion to mechanical drawing and the solution of such problems relating to magnitudes in space as bear directly upon those which present themselves to civil, electrical and mechanical engineers.

Text-books: Faunce's "Descriptive Geometry," Rouillion's "Mechanical Drawing."

Sophomore Year—First Term, 1 theoretical and 4 practical periods per week; Second Term, 2 theoretical and 6 practical periods per week; Third Term, 2 theoretical periods per week.

428. Blacksmithing. The making of the fire and how to keep it in order. The operations of drawing-out, upsetting and bending of iron and steel, including the calculations of stock for bent shapes. Welding. Construction of steel tools for use in the machine shop, including tool dressing and tempering. Annealing.

Sophomore Year—First and Second Term, 4 practical periods per week.

429. Technical Mechanics. Elementary principles of applied mechanics, calculations of gear and pulley trains, bent levers, calculation of belt lengths, lacing belts, the suction pump, and bolts and screws.

Text-book: Jamieson's "Mechanics."

Sophomore Year—Second Term, 2 theoretical periods per week.

430. Foundry Work. Moulding in iron and brass. Core making. The cupola and its management. Lectures on the selection of irons by fracture, fuels, melting and mixing of metals.

Sophomore Year—Third Term, 8 practical periods per week.

431. Steam Engines, Boilers and Dynamos. The principles of steam and the steam engine. The slide valve and valve diagrams. The indicator and its diagram. Steam boilers, the various types and their advantages. Each student taking this course is required to spend certain hours in the power plant actually operating the engines, boilers and dynamos. The theory of dynamos is given in course 182.

Text-book: Ripper's "Advanced Steam Engine."

Sophomore Year—Third Term, 3 theoretical periods per week.

432. Elementary Machine Design. Freehand sketching of the details of machinery and making working drawings of same. Calculations and drawings of a simple type punching press.

Text-book: Hoffman's "Machine Design."

Junior Year—First Term, 2 theoretical and 4 practical periods per week; Second Term, 2 theoretical and 6 practical periods per week; Third Term, 2 theoretical and 8 practical periods per week.

433. MACHINE WORK. Elementary principles of vise and machine work, which includes turning, planing, drilling, screw cutting and filing. This is preceded by study of the different machines used in the machine shops.

Junior Year—First and Second Term, 6 practical periods per week; Third Term, 8 practical periods per week.

434. GRAPHIC STATICS. The theory and practice of the method of determining stresses in cranes, roof trusses and bridges, and stress on beams and girders due to traveling loads.

Text-book: Merriman and Jacoby's "Graphic Statics."

Junior Year—Second Term, 4 theoretical periods per week.

435. STRUCTURAL DESIGN. Analysis of stresses in structural steel buildings, traveling cranes and derricks. Design of crane girders, lattice girders and roof trusses. In addition mechanical engineering students have design of cranes and civil engineering students have design of truss bridges and retaining walls. Both analytical and graphical methods are used, that being used which is best suited to problem.

Text-books: "Cambria Steel," Ketchum's "Steel Mill Buildings," Merriman's "Bridge Design," Thompson's "Bridge and Structural Design."

Senior Year—First and Second Term, 2 theoretical and 4 practical periods per week; Third Term, 2 theoretical and 6 practical periods per week.

436. MECHANICS OF ENGINEERING. The mechanics of solids. Statics of a material point and of rigid bodies. Chains and cords. Centrifugal and centripetal forces. Work. Power. Energy. Friction. Original problems. Theoretical hydraulics.

Text-book: Church's "Mechanics of Engineering."

Senior Year—First Term, 3 theoretical periods per week; Second and Third Term, 4 theoretical periods per week.

437. THERMODYNAMICS. Theory of heat, gases and vapors.

Heat engines. Air and refrigeration machinery. Principles of steam boilers, chimneys, steam piping and distribution of the same. The steam turbine.

Text-book: Peabody's "Thermodynamics," and Mark and Davis' "Steam Tables."

Senior Year—First Term, 2 theoretical periods per week; Second and Third Term, 3 theoretical periods per week.

438. Heating and Ventilation. Principles and comparison of the different systems in common use. Elementary design of some one system.

Text-book: Hoffman's "Heating and Ventilation."

Senior Year—First Term, 2 theoretical and 2 practical periods per week.

439. Experimental Engineering. Determining the amount of moisture in steam; the efficiency of the injector; the transit and its uses; indicator practice and the use of the planimeter; slide valve setting; the slide rule and micrometer; the analysis of boiler feed water; flue gases; lubricating oils; and the determination of the heating value of coals. The efficiency test of a Curtis steam turbine combined with that of an electric generator. The brake test and steam consumption of a cross compound condensing Corliss engine under varying loading. The testing of iron, steel and wood to determine their commercial values. The testing of cement to determine its tensile and compressive strength. All such tests must be written upon standard forms provided for each student.

Senior Year—First and Second Term, 8 practical periods per week; Third Term, 4 practical periods per week.

440. Hydromechanics. Pumps and pumping machinery. Water supply engineering. Practical consideration of friction of water in pipes. Cost data of machinery. Notes and lectures.

Senior Year—Second Term, 3 theoretical periods per week.

441. Thesis. The time devoted to the problem selected as the subject for a thesis depends upon the difficulties involved in its solution. The time here stated is a minimum.

Senior Year—Second Term, 4 practical periods per week; Third Term, 2 theoretical and 8 practical periods per week.

MILITARY SCIENCE.

MAJOR DAPRAY.

The Congress of the United States, subject to certain conditions, now appropriates annually a generous sum for each Agricultural College of the United States.

One of the conditions imposed by this grant is that the students shall receive a course of training in Military Tactics.

The instructor for this course is supplied by the War Department and is an officer of the Regular Army, detailed from his Regiment or Corps for this duty.

The value of such military training may be considered from two viewpoints: First, that of the United States Government; and, second, that of the individual student.

To consider the first: The Government, depending as it does upon the citizen soldier for its Volunteer Army in times of national peril, realizes that an army, recruited from raw material as regards both officers and men, would be a most hopeless proposition in these days of quick action. If the officers were trained men they would be of inestimable value in shaping these collections of citizens into efficient armies.

Government aided schools are therefore required to give such a course in Military Tactics as will create in this country a body of men, whose knowledge of the Military Art is sufficient to enable them to officer companies of infantry when called upon by the Government in the defense of the country.

From the viewpoint of the student, the military training makes for character—"it systematically develops the body and it educates the mind along a consistent line for the double purpose of clear thinking and effective practical work."

"It exercises the character, it disciplines the mind, it inculcates habits of subordination to lawful authority, of strict personal accountability for word and act, of truth telling, of integrity and fidelity to trust, of simplicity of life and of courage."

In addition, a cadet has during his term as such, most excellent opportunities to perfect himself in the great art of commanding others.

This problem is for every cadet to solve some time during his cadet career. He finds that he must know his men, and that he must know how to appeal to those under him, if he wishes to get results without antagonizing them.

How often capable men fail, simply because they have not the knack of exercising authority so as to obtain the most satisfactory results.

Often do graduates, even those to whom the military training was distasteful, express their appreciation of the value that this training which they received at College, is to them in their several walks of life.

INSPECTION.

The War Department designates an officer of the General Staff of the Regular Army to make an annual inspection of the Military Department of each of the institutions of learning in the United States at which an officer is regularly detailed. There are about one hundred such institutions. This inspector rates these schools according to their status and military efficiency.

ORGANIZATION.

The Corps of Cadets is organized as a battalion of three companies, staff and band, the drill and administration of which conform as far as possible to that of the Regular Army.

All students, other than those physically disabled, and those specially excused by the President of the College, are required to drill, and upon entering are enrolled in one of the companies of the battalion.

INSTRUCTION.

The instruction in the Military Department is both practical and theoretical. The practical instruction includes the School of the Soldier, Squad, Company and Battalion in Close and Extended Order, Ceremonies of Guard-Mounting, Review and Inspection, Dress Parade, Escort to the Color, Advance and Rear Guard work,

Patrolling and Scouting, Marches, Target Practice, Visual Signalling, Military Engineering and Topography.

The theoretical instruction is given to all members of the Senior Class and consists of instruction in Infantry Drill Regulations, Manual of Guard Duty, Firing Regulations for Small Arms, Field Service Regulations, First Aid to the Injured, etc., supplemented by lectures on tactical subjects, Army Regulations, Company Books and Papers, Messing, Cooking, Tactics, Camp Sanitation and Military Law.

EQUIPMENT.

The battalion of cadets is equipped with the United States magazine rifle, caliber 30, known as the Krag-Jorgensen, with complete equipment of side arms, cartridge box, etc. The cadet officers and non-commissioned staff officers are equipped with the regulation West Point cadet sword and sash.

The Government also has supplied the battalion with the new regulation sub-calibre target rifle for gallery practice, and has been very liberal in the allowance of ammunition for gallery practice, of blank cartridges for field exercises, and of ball cartridges for outdoor range practice.

Students are held strictly accountable for all arms and equipment issued to them.

PROMOTIONS.

The officers and non-commissioned officers of the corps are selected with reference primarily to their fitness for the duties they will be required to perform. Their general deportment and proficiency in academic work are also given weight in making such selection.

Commissioned officers are, as a rule, selected from the Senior Class, sergeants from the Junior Class, and corporals from the Sophomore Class.

Cadet officers are required to serve from the beginning of the scholastic year up to March 1, of that year. On this date readjustment of rank is made, based upon the following: Military Effi-

ciency, as evidenced by the fall drills and winter recitations in the Tactical Department; Military Discipline and Soldierly Bearing; General Deportment.

UNIFORM.

The uniform worn by all members of the battalion of cadets is the regulation West Point fatigue uniform, and is made of the best Charlottesville gray cloth. The uniform consists of the gray fatigue blouse, trousers and cap, with white cross belt and white waist belt for all military formations. By special contract with one of the largest Military Equipment houses in the United States, the uniform and equipment is furnished at a very low price. Measures for this uniform are taken as soon as the student arrives at College, and fit is guaranteed.

In summer, the field service uniform is worn, consisting of olive drab blouse, shirt, and trousers, with canvas leggins, regulation campaign hat, tan waist belt and black tie.

White gloves, collars, caps and other military accessories may be purchased at the stores near the College, or from the contractor who furnishes the uniforms.

Information concerning the cost of uniforms, etc., may be found on page 134.

PHYSICAL CULTURE.

DIRECTOR BYRD.

The physical culture of the students is provided for by a regular course of instruction in the Gymnasium. The course is carefully planned, so as to develop gradually and scientifically the physical powers of each student. One of the most valuable features of this Department is a complete anthropometry outfit, by means of which measurements and strength tests of students are taken at the beginning and also at the end of each scholastic year. By means of these measurements and tests the exact physical con-

dition of each individual student can be ascertained, and such special exercises given as will produce a symmetrical development of the body. While desiring to make the work in the Gymnasium of practical value to all the students, the required work only extends through the Preparatory and Sub-Freshman Years.

COURSES OFFERED.

*460. GYMNASIUM WORK. Scientific body building, with light gymnastics.

Preparatory Year—3 practical periods per week.

461. HYGIENE. The care of the person in its relation to physical well-being.

Sub-Freshman Year—Second Term, 2 practical periods per week.

*462. GYMNASIUM WORK. Scientific body building, with heavier gymnastic work.

Sub-Freshman Year—2 practical periods per week.

SUB-COLLEGIATE INSTRUCTION.

PROFESSOR HARRISON.
PROFESSOR RICHARDSON.

This Department was established in 1892, and reorganized in 1913; and is designed to meet the requirements of those students who have not had the advantage of a thorough grammar and high school training, with a view to equipping them to enter the regular collegiate department.

Only such students are desired as will be able to enter the Freshman Class within two years, and who are fifteen years of age. This course is recommended specially to students who have not been to school for several years; for their progress in the regular col-

*This work, temporarily discontinued on account of unusual conditions, will be resumed as soon as conditions permit.

legiate course, by virtue of such a drawback, would be seriously impeded. It is to be remarked that as a rule the students who have taken this course make excellent progress in their later college work. Students in this Department are subject to the same military regulations as other students.

For outline of courses see page 115.

VETERINARY SCIENCE.

PROFESSOR BUCKLEY.

This Department offers instruction in the elements of veterinary science. The course embraces the study of the external form as well as the internal structure and functions of the domesticated animals. It is intended to supplement animal husbandry instruction, and does not have for its object the training of students for veterinary practice. The preservation of health in animals is more aimed at than their restoration from disease. When studiously pursued the courses offered are of great value to the breeder, feeder or manager of live stock.

COURSES OFFERED.

The accompanying brief descriptions indicate the scope of the different courses.

480. SANITATION. Public discussion has emphasized a necessity for better practices in the production and care of animal products used for human food. The study of sanitation, therefore, is of considerable importance to students who may elect courses of study bearing upon animal production and dairying. Inasmuch as sanitary laws are applicable to the individual and the home, as well as to animals and their stables, it is desirable that all students receive some instruction in this subject. It is given, therefore, early in the course before specialization of subjects is made.

Sub-Freshman Year—Second Term, 2 practical periods per week.

481. ANATOMY AND PHYSIOLOGY. This course embraces a general consideration of the structure and functions of the animal body, with especial reference to animal production and dairying.

Junior Year—Second Term, 3 theoretical periods per week.

482. Animal Diseases. A study is made of the diseases of the domesticated animals with emphasis upon sanitation, practical bacteriology, nursing, administration of medicine and use of common medicinal substances. The aim of this course is to enable the student to perceive the early appearance of diseases and intelligently care for them under proper veterinary supervision.

Senior Year—Second Term, 5 theoretical and 6 practical periods per week.

483. Animal Diseases. A briefer course in animal diseases is offered to the students in the two-year Agricultural and Horticultural Courses.

Second Year—Second Term, 2 theoretical and 4 practical periods per week.

THE COLLEGE LIBRARY.

DR. SILVESTER.

The College Library may be properly regarded as one of the departments of the institution, as its aid for purposes of reference and its influence upon the mental development of the students must always be felt throughout all courses. The present quarters of the Library, while adequate for its immediate needs, will necessarily be too limited in the course of time. The reading room is well arranged and lighted, and is in all respects comfortable and convenient.

While the Library is not large, the collection of works has been carefully chosen, and the shelves contain a fair supply of works of reference, history, biography, essays, poetry and the standard works of fiction. Several thousand volumes of bound United States Government Reports comprise an important addition to the reference works of the Library. Most of the leading magazines and a number of newspapers are subscribed for; technical periodicals and works of reference relating to specific branches are deposited in the libraries of the various departments.

The works in the Library are classified according to the modern Dewey Decimal System of classification. As rapidly as possible the sets of Government Reports that are most valuable are being completed and catalogued. At present there are on hand completed to date, or nearing completion, sets of the reports and bulletins of the United States Agricultural Department, the Geological Survey, the Fish Commission, the Smithsonian Institution, the National Museum, the Bureau of Ethnology, the Bureau of Education, the Labor Bureau, the Census Bureau and the Bureau of American Republics. There are also nearly completed sets of the Consular Reports, Special Consular Reports, the Engineers' Reports of the United States Army, the War of the Rebellion Records and Messages and Documents, besides many other miscellaneous publications of great value. Many valuable State publications are also on file.

It is the aim of the Librarian to render all these valuable works available for easy reference by the students.

Grateful acknowledgment is made to the officers of all the departments and bureaus above noted for their publications, and especially to the United States Superintendent of Documents, through whose aid many public documents have been received. Thanks are likewise due the following for valuable additions to the Library: Johns Hopkins University, the Geological Survey, the Weather Service, the Highway Commission, and the Bureau of Statistics and Information. Special thanks are due the county press for their liberality in sending their publications free to the Library.

YOUNG MEN'S CHRISTIAN ASSOCIATION.

MR. DARROW.

Aims.

Service, first, last and all the time is the aim of the Y. M. C. A. It attempts nothing through selfish motives, but through the desire to turn into right channels a boy's surplus energy.

Nature.

The Maryland Agricultural College Association is affiliated with the International Y. M. C. A. and membership in the local branch carries with it a welcome to all city and student associations, and during vacation periods, entitles the holder to many of the privileges of the city Y. M. C. A.

Officers.

For the first time a salaried secretary is in charge of the Y. M. C. A. organization. He works through and with a student cabinet, having a President, Vice-President, Recorder, Treasurer, and chairmen of the following committees: Employment, Membership, Social Affairs, Music, Publications and Bible Study.

The Employment Committee assists students in finding the kind of work they want, acting as a clearing house to employer and employee.

The Membership Chairman's duties are as the title indicates. The Social Chairman plans receptions, banquets, and social affairs affording a pleasant evening's entertainment to all. The Music Chairman obtains special music for Sunday and other meetings, and the Publications Chairman keeps the public informed.

Regular Meetings.

The Bible Study Chairman organizes bible and special problem study classes, and endeavors to interest the student in unselfish ideals.

Special speakers on both popular and religious subjects, are provided for Sunday 3:30 meetings. The proximity to Washington makes it possible to obtain the best of talent, Representatives, Government officials, worth while business men, and Ministers of power, thus making the meetings of great value.

Location.

The Y. M. C. A. will move into Calvert Hall when completed. There it will have beautiful quarters; a game room, furnished with

all kinds of games, a pool room, a reading and writing room, and an office for the Secretary. A good readable line of books having a sane, helpful, moral tone will make the reading room attractive.

New Students.

Receptions are given to get the new men acquainted with the student body and with the members of the faculty, so as to make them feel "at home."

New students are given special attention, warned of dangers and guided to harmless but interesting methods of "letting off steam" without scorching their moral fibre.

A handbook is published, giving the student detailed information about the College, its societies and activities. Upon request it will be mailed to you free of charge.

The Association welcomes at all times suggestions for its betterment and extension of its service.

COURSES OF STUDY.

In order to systematize the work of the different departments of the College, and as far as possible arrange for specialization within limits consistent with the normal development of individual students, eleven distinct courses of study have been prepared, one of which the student is expected to choose upon entering the regular College work.

These courses are Agricultural Education, Agronomy, Animal Husbandry, Horticulture, Biology, Chemistry, Canning, General Science, Civil Engineering, Electrical Engineering and Mechanical Engineering.

A continuous and progressive course of work, beginning in the Freshman Year, with a nearly uniform course for all students, and gradually separating in the three succeeding years until the class work is almost wholly specialized, has been found to be most satisfactory. A broad and liberal foundation in English, mathematics and history is laid in the Freshman and Sophomore Years, and then the particular line of study desired is emphasized more and more until the end of the course.

In addition to the regular collegiate courses, two-year courses are given in Agriculture and Horticulture.

There are also two Courses in Sub-collegiate Instruction for the benefit of students unable to obtain elsewhere adequate preparation for entrance into the Freshman Class.

Short Winter Courses in Agriculture and Horticulture are given for the benefit of those who find it impossible to afford the time necessary for an extended course in these subjects.

The Agricultural College, in co-operation with the State Department of Education, conducts a six-weeks' SUMMER SCHOOL, beginning this year on June 22nd.

The purpose of the SUMMER SCHOOL is to provide a course of vocational training for teachers and prospective teachers of rural and graded schools. The work offered this year includes courses in Elementary Agriculture, Domestic Science and Art, Industrial Hand Work, Theory and Practice of Teaching, History of Mary-

and, State and National Constitutions, Chemistry, Physics, Botany, Zoology and Entomology.

A bulletin giving a full description of the courses is issued by the College. For full information address the Director of the Summer School.

In the tabular statements of the courses the periods per week are given, the numbers in parenthesis denoting practical or laboratory periods, the others theoretical or recitation periods.

AGRICULTURAL EDUCATION COURSE.

The Course in Agricultural Education is arranged to give the student a broad general knowledge of agriculture, languages, science and pedagogy.

Students taking this course receive practically the same work during the first two years as those of the other agricultural courses. In the Junior and Senior Years the agricultural work is continued in addition to the special work in pedagogy and practice teaching, which these students receive. Enough of agriculture is included in the course to enable the student to carry on farm operations in a scientific manner. The graduate is fitted not only to teach and supervise the teaching of agricultural subjects, but to manage school demonstration farms or conduct a farm of his own.

Agricultural Education Course.

Subject.	Term. I	Term. II	Term. III
Freshman Year.			
Mathematics 404	(2)	.....	.....
Trigonometry 406	.....	5	.....
English 226	4(2)	4(2)	4(2)
History 163	3*	3*	3*
Latin 341	3*	3*	3*
German 360	3**	3**	3**
French 380	3**	3**	3**
Agronomy 21	.....	1	1(2)
Breeds and Scoring 41	1(4)	.....	.....
Farm Buildings 42	.....	(4)	.....
Pomology 261	.....	.....	(2)
Vegetable Gardening 280	.....	(2)	.....
Landscape Gardening 300	1(2)	.....	.....
Botany 63	.....	.....	2(4)
Zoology 241	2(4)	.....	.....
Chemistry 81	.....	4(2)	4(2)
Freehand Drawing 423	(4)	.....	.....
Mechanical Drawing 424	(4)	.....	.....
Woodwork 426	.....	.....	(4)
Junior Year.			
English Literature 230	2	2	.....
Advanced Composition 231	1(2)	1(2)	1
Public Speaking 232	(2)	(2)	(2)
Civil Government 140	3	3	.....
Business Law 141	.....	.....	3
Logic 1	.....	.....	2
Psychology 2	3	.....	.....
History of Education 3	.....	5	.....
Principles of Education 4	.....	.....	4
Breeds 41	2(2)	.....	.....
Principles of Breeding 44	3	.....	.....
Animal Nutrition 45	.....	4	2(4)
Stock Judging 46	.....	.....	1(4)
Practical Small Fruit Culture 265	.....	2(4)	.....
Plant Materials 306	.....	.....	2(2)
Economic Entomology 244	2(4)	.....	.....
Organic Chemistry 88	4	.....	.....
Bacteriology 100	.....	(8)	.....
Surveying 126	.....	.....	2(4)

Subject.	Term. I	Term. II	Term. III
Sophomore Year.			
Composition 227	1(2)	1(2)	1(2)
Public Speaking 228	(2)	(2)	(2)
American Literature 229	2	2	.....
English Literature 230	.....	.....	2
German 361	3*	3*	3*
French 381	3*	3*	3*
Soils 22	2(4)	2(4)	.....
Fertilizers 23	.....	2(4)	.....
Farm Crops & Drainage 24	.....	.....	2(4)
Live Stock Management 43	2(4)	.....	.....
Vegetable Growing 281	.....	.....	1(4)
Ornamentation of Home Grounds 301	.....	.....	(4)
Plant Histology 65	1(6)	.....	.....
Plant Physiology 66	.....	1(6)	.....
Entomology 243	.....	.....	2(4)
Chemistry 81	3(4)	.....	.....
Qualitative Analysis 83	.....	1(8)	.....
Quantitative Analysis 84	.....	.....	1(6)
Senior Year.			
Composition 235	1	1	1
Political Economy 143	4	4	4
Agricultural Education 5	3(2)	.....	.....
Organization & Materials 6	.....	3(2)	.....
Rural Organization 7	.....	.....	3(2)
Farm Machinery 26	2(4)	.....	.....
Agronomy 27	3(4)	.....	.....
Grain Judging 28	.....	(4)	.....
Farm Management 29	.....	.....	2(4)
Dairying 47	.....	2(4)	.....
Poultry 49	.....	2	.....
Animal Diseases 482	.....	5(6)	.....
Viticulture 269	2(2)	.....	.....
Floriculture 315	.....	.....	2(2)
Farm Forestry 320	.....	.....	2(4)
Agricultural Chemistry 92	4	.....	.....
Agricultural Analysis 97	.....	.....	(4)
Research & Thesis 8	.....	.....	1(4)
.....	.....	.....	.....
.....	.....	.....	.....

*Courses marked with asterisks are alternative.

AGRONOMY COURSE.

The four-year Course in Agronomy is designed to fit the graduate for conducting practical operations on the farm, or, should taste or circumstances so direct, to prosecute successfully advanced scientific research along the lines of agronomy, or if occasion requires, to act as county demonstrators or advisers. With these ends in view, the Course has been made at once comprehensive and tech-

nical. It is comprehensive enough to include whatever is necessary for the complete development of the work, yet technical enough to make the student feel that he is a specialist and equipped for special work.

Agronomy Course.

Subject.	Term. I	Term. II	Term. III
Freshman Year.			
Mathematics 404	(2)	....	.....
Trigonometry 406	.....	5	.....
English 226	4(2)	4(2)	4(2)
History 163	3*	3*	3*
Latin 341	3*	3*	3*
German 360	3**	3**	3**
French 380	3**	3**	3**
Agronomy 21	.....	1	1(2)
Breeds and Scoring 41	1(4)	.....	.....
Farm Buildings 42	.....	(4)	.....
Pomology 261	.....	.....	(2)
Vegetable Gardening 280	.....	(2)	.....
Landscape Gardening 300	1(2)	.....	.....
Botany 63	.....	.....	2(4)
Zoology 241	2(4)	.....	.....
Chemistry 81	.....	4(2)	4(2)
Freehand Drawing 423	(4)	.....	.....
Mechanical Drawing 424	(4)	.....	.....
Woodwork 426	.....	.....	(4)
Junior Year.			
English Literature 230	2	2	.....
Advanced Composition 231	1(2)	1(2)	1
Public Speaking 232	(2)	(2)	(2)
Civil Government 140	3	3	.....
Business Law 141	.....	.....	3
Logic 1	.....	.....	2
German 362	3*	3*	3*
French 382	3*	3*	3*
Crop Production 25	2(4)	.....	.....
Principles of Breeding 44	3	.....	.....
Animal Nutrition 45	.....	4(2)	.....
Stock Judging 46	.....	.....	1(4)
Anatomy & Physiology 481	.....	3	.....
Vegetable Pathology 72	.....	.....	2(4)
Geology 87	2(2)	2	.....
Organic Chemistry 88	4	.....	.....
Bacteriology 100, 101	.....	(8)	(8)
Surveying 126	.....	.....	2(4)

Subject.	Term. I	Term. II	Term. III
Sophomore Year.			
Composition 227	1(2)	1(2)	1(2)
Public Speaking 228	(2)	(2)	(2)
American Literature 229	2	2	.....
English Literature 230	.....	.....	2
German 361	3*	3*	3*
French 381	3*	3*	3*
Soils 22	2(4)	2(4)	.....
Fertilizers 23	.....	2(4)	.....
Farm Crops & Drainage 24	.....	.....	2(4)
Live Stock Management 43	2(4)	.....	.....
Plant Histology 65	1(6)	.....	.....
Plant Physiology 66	.....	1(6)	2(4)
Entomology 243	.....	.....	2(4)
Chemistry 81	3(4)	.....	.....
Qualitative Analysis 83	.....	1(8)	.....
Quantitative Analysis 84	.....	.....	1(8)
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
Senior Year.			
Composition 235	1	1	1
Political Economy 143	4	4	4
Psychology 2	4	.....	.....
History of Education 3	.....	4	.....
Farm Machinery 26	2(4)	.....	.....
Agronomy 27	3(4)	.....	3(4)
Farm Management 29	.....	.....	2(4)
Dairying 47	.....	2(4)	.....
Animal Diseases 482	.....	5(6)	.....
Plant Breeding 273	.....	2	2(2)
Farm Forestry 320	.....	.....	2(4)
Agricultural Chemistry 92	4	.....	.....
Research & Thesis 30	1(4)	(4)	2(4)
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....

*Courses marked with asterisks are alternative.

ANIMAL HUSBANDRY COURSE.

The purpose of the Course in Animal Husbandry is to fit the graduate to carry out successfully the operations pertaining to general farming, to become an expert in the raising and feeding of live

stock, to pursue scientific investigations along lines pertaining t animal husbandry, or to act in the capacity of an advisor or demon strator in rural communities. Therefore, the curriculum has bee

Animal Husbandry Course.

Subject.	Term.		
	I	II	III
Freshman Year.			
Mathematics 404	(2)	.....	.....
Trigonometry 406	.....	5	.....
English 226	4(2)	4(2)	4(2)
History 163	3*	3*	3*
Latin 341	3*	3*	3*
German 360	3**	3**	3**
French 380	3**	3**	3**
Agronomy 21	.....	1	1(2)
Breeds and Scoring 41	1(4)	.....	.....
Farm Buildings 42	.....	(4)	.....
Pomology 261	.....	.....	(2)
Vegetable Gardening 280	.....	(2)	.....
Landscape Gardening 300	1(2)	.....	.....
Botany 63	.....	.....	2(4)
Zoology 241	2(4)	.....	.....
Chemistry 81	.....	4(2)	4(2)
Freehand Drawing 423	(4)	.....	.....
Mechanical Drawing 424	(4)	.....	.....
Woodwork 426	.....	.....	(4)
Junior Year.			
English Literature 230	2	2	.....
AdvancedComposition 231	1(2)	1(2)	1
Public Speaking 232	(2)	(2)	(2)
Civil Government 140	3	3	.....
Business Law 141	.....	.....	3
Logic 1	.....	.....	2
German 362	3*	3*	3*
French 382	3*	3*	3*
Breeds and Scoring 41	2(4)	.....	.....
Principles of Breeding 44	3	.....	.....
Animal Nutrition 45	.....	4(2)	2(4)
Stock Judging 46	.....	.....	1(4)
Anatomy &Physiology 481	.....	3	.....
Geology 87	2(2)	2	.....
Organic Chemistry 88	4	.....	.....
Bacteriology 100, 101	.....	(8)	(8)
Surveying 126	.....	.....	2(4)

Subject.	Term.		
	I	II	III
Sophomore Year.			
Composition 227	1(2)	1(2)	1(2)
Public Speaking 228	(2)	(2)	(2)
American Literature 229	2	2	.....
English Literature 230	.....	.....	2
German 361	3*	3*	3*
French 381	3*	3*	3*
Soils 22	2(4)	2(4)	.....
Fertilizers 23	.....	2(4)	.....
Farm Crops & Drainage 24	.....	.....	2(4)
Live Stock Management 43	2(4)	.....	.....
Plant Histology 65	1(6)	.....	.....
Plant Physiology 66	.....	1(6)	2(4)
Entomology 243	.....	.....	2(4)
Chemistry 81	3(4)	.....	.....
Qualitative Analysis 83	.....	1(8)	.....
Quantitative Analysis 84	.....	.....	1(8)
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
Senior Year.			
Composition 235	1	1	1
Political Economy 143	4	4	4
Psychology 2	4	.....	.....
History of Education 3	.....	4	.....
Farm Machinery 26	2(4)	.....	.....
Farm Management 29	.....	.....	2(4)
Animal Nutrition 45	3(4)	.....	3(2)
Dairying 47	.....	2(4)	.....
Poultry 49	.....	2	.....
Animal Diseases 482	.....	5(6)	.....
Farm Forestry 320	.....	.....	2(4)
Animal Parasites 254	.....	.....	2(4)
Agricultural Chemistry 92	4	.....	.....
Research & Thesis 50	1(4)	(4)	2(4)
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....

* Courses marked with asterisks are alternative.

outlined to include, in addition to the subjects necessary for the development of a specialist in animal husbandry, those which will give a broad training in agriculture and other cultural branches.

TWO-YEAR AGRICULTURAL COURSE.

A large number of young men seeking to better themselves in their chosen profession of farming are calling for instruction in those courses pertaining to practical agriculture. Many of them have neither the time nor means at hand to take the full four-year Course, but while away in school they wish to gain the greatest possible amount of instruction and assistance which is particularly applicable to the farm. They realize that the farm can no longer be run in the old-time haphazard way, that there is a demand for skill and the highest order of intelligence to make a success on the farm, as in any other line of human endeavor, and that brains must be

Two-Year Agricultural Course.

Subject.	Term.			Subject.	Term.		
	I	II	III		I	II	III
First Year.				**Second Year.**			
Farm Arithmetic 400	3	.....	.....	Farm Literature 224	(2)	(2)	(2)
Farm Accounts 401	.....	.....	(4)	Composition 225	1	1	1
English 223	5	5	5	Business Law 142	.....	3	.....
Farm Literature 224	(2)	(2)	(2)	Fertilizers 23	.....	2(4)	.....
Soils 22	2(4)	2(4)	.....	Crop Production 25	3(4)	.....	2(2)
Farm Crops & Drainage 24	.....	.....	2(4)	Grain Judging 28	.....	2(4)	.....
Farm Machinery 26	.....	.....	2(4)	Farm Management 29	2(2)	.....	.....
Breeds and Scoring 41	1(4)	.....	.....	Principles of Breeding 44	3	.....	.....
Farm Buildings 42	.....	(4)	.....	Animal Nutrition 45	2	2	.....
Poultry 49	.....	2	.....	Stock Judging 46	(4)	.....	.....
Pomology 261, 262	2(4)	2(4)	.....	Dairying 47	.....	.....	2(4)
Practical Small Fruit Culture 265	.....	.....	2(2)	Stock Feeding 48	.....	(4)	.....
Vegetable Gardening 280	.....	1(4)	.....	Animal Diseases 483	.....	2(4)	.....
Home Grounds 300	2(2)	.....	.....	Commercial Pomology 264	2(2)	.....	.....
Seeds and Weeds 62	(4)	.....	.....	Vegetable Growing 282	2	.....	.....
Farm Botany 64	.....	.....	2(4)	Market Gardening 285	.....	.....	(4)
Farm Zoology 249	.....	.....	2	Farm Forestry 320	.....	.....	2(4)
Mechanical Drawing 424	.....	(4)	.....	Plant Diseases 71	.....	.....	2(2)
Farm Woodwork 426	.....	(4)	.....	Insect Pests 251	.....	.....	2(4)
.....	.....	.....	.....	Farm Chemistry 80	2(2)	2(2)	2(2)
				Dairy Bacteriology 102	.....	(2)	.....

planted with each little seed, and also put into the feeding trough for the animal. To meet the demand for instruction along these lines, and for a better understanding of the underlying principles of successful agriculture, a short course of two years has been provided.

It embraces much of the technical work of the four-year Course, and is especially designed to lay a foundation that will secure success in practical farming, which, as it must be conducted today, is a

union of many interests. To enter this Course a working knowledge of arithmetic, including fractions, mensuration and percentage, and a common-school training in English is required. Upon completion of this Course a certificate is granted.

SHORT WINTER COURSES.

For men and women who can spare from one to ten weeks only from their home duties the College offers a series of short courses occupying from one to two weeks each, beginning after the Christmas vacation.

For 1915 the arrangement will be:

First week—Soils and Fertilizers.

Second week—{ Farm Crops. / Domestic Science.

Third week—Poultry Husbandry.

Fourth and fifth weeks—Horticulture.

Sixth week—Horses and Beef Cattle.

Seventh week—Swine and Sheep Husbandry.

Eighth week—Dairy Husbandry.

Ninth week—Farm Implements and Motors.

Tenth week—Farm Carpentry, Blacksmithing and Pipe Fitting.

Experience has demonstrated the advantage of dividing the work into short periods, during which time the attention of the student is engrossed wholly with one subject. It enables the student to concentrate his efforts and affords opportunity for those who are interested in but one or two subjects, such as poultry husbandry or domestic science, for example, to take what they desire with the greatest economy of time.

No charge is made to short course students for the use of laboratories. Good board at moderate rates can be secured in the neighborhood. For more detailed information regarding these courses, write for bulletin and folders.

HORTICULTURAL COURSE.

Through the organization of the School of Horticulture an opportunity is presented for students in the four-year Course to spe-

Horticultural Course.

Subject.	Term. I	Term. II	Term. III
Freshman Year.			
Mathematics 404	(2)	.....	.....
Trigonometry 406	.....	5	.....
English 226	4(2)	4(2)	4(2)
History 163	3*	3*	3*
Latin 341	3*	3*	3*
German 360	3**	3**	3**
French 380	3**	3**	3**
Agronomy 21	.....	1	1(2)
Breeds and Scoring 41	1(4)	.....	.....
Farm Buildings 42	.....	(4)	.....
Pomology 261	.....	.....	(2)
Vegetable Gardening 280	.....	(2)	.....
Landscape Gardening 300	1(2)	.....	.....
Botany 63	.....	.....	2(4)
Zoology 241	2(4)	.....	.....
Chemistry 81	.....	4(2)	4(2)
Freehand Drawing 423	(4)	.....	.....
Mechanical Drawing 424	(4)	.....	.....
Woodwork 426	.....	.....	(4)
Junior Year.			
English Literature 230	2	2	.....
Advanced Composition 231	1(2)	1(2)	1
Public Speaking 232	(2)	(2)	(2)
Civil Government 140	3	3	.....
Business Law 141	.....	.....	3
Logic 1	.....	.....	2
German 362	3*	3*	3*
French 382	3*	3*	3*
Commercial Pomology 264	2(2)‖	.....	.....
Practical Small Fruit Culture 265	.....	2(4)‖	.....
Practical Pomology 266	.....	2(4)‖	2(2)‖
Commercial Small Fruit Culture 267	.....	.....	2(4)‖
Vegetable Growing 282	1(4)‡	2(8)‡	(6)‡
Vegetable Culture 283	.....	2‡	2‡
Vegetable Culture 284	.....	.....	2‡
Greenhouse Management 302	2(2)§	.....	.....
Floral Decoration 303	.....	(2)§	.....
Floriculture 304	.....	2(4)§	2(4)§
Greenhouse Construction 305	.....	2(2)§	.....
Plant Materials 306	.....	.....	2(2)§
Vegetable Pathology 72	.....	.....	2(4)
Economic Entomology 244	2(4)	.....	.....
Geology 87	2(2)	2	.....
Organic Chemistry 88	4	.....	.....
Bacteriology 100	.....	(8)	.....
Surveying 126	.....	.....	2(4)
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....

Subject.	Term. I	Term. II	Term. III
Sophomore Year.			
Composition 227	1(2)	1(2)	1(2)
Public Speaking 228	(2)	(2)	(2)
American Literature 229	2	2	.....
English Literature 230	.....	.....	2
German 361	3*	3*	3*
French 381	3*	3*	3*
Soils 22	2(4)	2(4)	.....
Fertilizers 23	.....	2(4)	.....
Farm Crops & Drainage 24	.....	.....	2(4)
Principles of Pomology 262	2(4)	.....	.....
Principles of Small Fruit Culture 263	.....	2(2)	.....
Vegetable Growing 281	.....	.....	1(4)
Ornamentation of Home Grounds 301	.....	2	(4)
Plant Histology 65	1(6)	.....	.....
Plant Physiology 66	.....	1(6)	2(4)
Entomology 243	.....	.....	2(4)
Chemistry 81	3(4)	.....	.....
Senior Year.			
Composition 235	1	1	1
Political Economy 143	4	4	4
Psychology 2	4	.....	.....
Farm Machinery 26	2(4)	.....	.....
Practical Pomology 266	.....	1(6)‖	.....
Systematic Pomology 268	2(4)‖	1(4)‖	.....
Viticulture 269	2(2)‖	.....	.....
Literature of Fruit Growing 270	.....	1(2)‖	.....
Nut Culture 271	.....	2(2)‖	.....
Citrus and Subtropical Fruits 272	.....	3‖	.....
Plant Breeding 273	.....	2‖	2(2)‖
Advanced Small Fruit Culture 274	.....	.....	2(2)‖
Advanced Pomology 275	.....	.....	2(2)‖
Market Gardening 285	2(6)‡	6(12)‡	(6)‡
Experimental Vegetable Culture 286	.....	.....	2(4)‡
Tree Surgery 307	1(4)§	.....	.....
Landscape Design 308	2(6)§	.....	.....
Civic Art 309	.....	2(2)§	.....
Planting Plans 310	.....	2(6)§	.....
Aesthetics of Landscape Gardening 311	.....	2§	.....
Landscape Practice 312	.....	2(8)§	.....
Landscape Gardening 313	.....	.....	2§
Garden Flowers 314	.....	.....	2(4)§
Farm Forestry 320	.....	.....	2(4)
Applied Entomology 253	.....	.....	2(4)
Agricultural Chemistry 92	4	.....	.....
Research & Thesis.. 276.	(2)‖	(6)‖	(6)‖
Research & Thesis.. 287.	1(4)‡	2(12)‡	1(8)‡
Research & Thesis.. 316.	.....	2(4)§	(12)§

*Courses marked with asterisks are alternative.
‖For students specializing in Pomology.
‡For students specializing in Vegetable Culture.
§For students specializing in Landscape Gardening and Floriculture.

cialize in either pomology, vegetable culture or landscape gardening and floriculture.

These courses are designed to fit the student for conducting practical operations in horticulture on the farm, or to continue scientific research work and teaching in his chosen field. Practical work is made a prominent feature of the course. In the Freshman and Sophomore Years the work is not materially different from that of the Agricultural and Biological Courses, as all students are required to take certain fundamental subjects. In the Junior and Senior Years the courses become specialized.

The College and Experiment Station farm, orchards, greenhouses, etc., together with the close proximity of the Institution to the United States Department of Agriculture greenhouses and experiment farms, offer unusual opportunities to the students in horticulture.

TWO-YEAR HORTICULTURAL COURSE.

The two-year Course in Horticulture is intended for young men who wish to devote their efforts to fruit and vegetable growing, or

Two-Year Horticultural Course.

Subject.	Term. I	II	III	Subject.	Term. I	II	III
First Year.				Second Year.			
Farm Arithmetic 400	3	.....	.....	Farm Literature 224	(2)	(2)	(2)
Farm Accounts 401	.....	.....	(4)	Composition 225	1	1	1
English 223	5	5	5	Business Law 142	.....	3	.....
Farm Literature 224	(2)	(2)	(2)	Fertilizers 23	.....	2(4)	.....
Soils 22	2(4)	2(4)	.....	Farm Management 29	2(2)	.....	.....
Farm Crops & Drainage 24	.....	.....	2(4)	Stock Judging 46	(4)	.....	.....
Farm Machinery 26	.....	.....	2(4)	Stock Feeding 48	.....	(4)	.....
Breeds and Scoring 41	1(4)	.....	.....	Animal Diseases 483	.....	2(4)	.....
Farm Buildings 42	.....	(4)	.....	Commercial Pomology 264.	2(2)	.....	.....
Poultry 49	.....	2	.....	Nut Culture 271	.....	2	.....
Pomology 261, 262	2(4)	2(4)	.....	Vegetable Growing 282	2(4)	(4)	.....
Practical Small Fruit Culture 265	.....	.....	2(2)	Vegetable Culture 284	2	.....	.....
Vegetable Gardening 280.	.....	1(4)	.....	Market Gardening 285	.....	.....	(4)
Home Grounds 300	2(2)	.....	.....	Greenhouse Management 302	2 2)	.....	.....
Seeds and Weeds 62	(4)	.....	.....	Floriculture 304	.....	.....	2(4)
Farm Botany 64	.....	.....	2(4)	Greenhouse Construction 305	2(2)	.....	.....
Farm Zoology 249	.....	.....	2	Plant Materials 306	.....	.....	2(2)
Mechanical Drawing 424	.....	(4)	.....	Farm Forestry 320	.....	.....	2(4)
Farm Woodwork 426	.....	(4)	.....	Plant Diseases 71	.....	.....	2(2)
.....	.....	.....	.....	Spraying 250	.....	2(2)	
.....	.....	.....	.....	Insect Pests 251	.....	.....	2(4)
.....	.....	.....	.....	Farm Chemistry 80	2(2)	2(2)	2(2)

to commercial nursery or flower business, and who cannot afford the time required for a regular College course.

The Course is so arranged that the students will be given the fundamental work in horticulture and agriculture, and they can also specialize in their second year to some extent along the line of horticulture in which they are particularly interested. Courses in English, botany, entomology and chemistry are included in their work.

Upon the completion of the two years' work satisfactorily, the students are given a Certificate.

SHORT WINTER COURSE IN HORTICULTURE.

A two weeks' short Course in Horticulture is offered each winter to those who are unable to spend a longer time at the College. The Course is designed for practical men who can leave home for short periods during the winter. It consists of lectures on all phases of horticulture and practical demonstrations in spraying, packing, pruning, etc. For further particulars regarding Winter Courses, see page 96, special folders, etc.

BIOLOGICAL COURSE.

The Biological Course, while offering a general education and special training in the natural sciences, is outlined in particular for those who wish to specialize in some branch of botany or zoology. It aims to fit men for practical work in the field of plant pathology and entomology, but will also give training for special work in the pure sciences.

In addition, this Course is specially valuable in preparing students who wish to enter the medical profession, particularly those who expect to enter the highest grade medical schools, which require for entrance a four year collegiate course in sciences and languages. These students will be required to substitute organic chemistry for some subject given in the regular Biological Course.

There are many opportunities for scientific workers in connection with the Agricultural investigations of the Federal Government and of the State Experiment Stations, as well as in the State inspection

work, for which this Course gives training. In fact, it is now difficult to secure men trained for such work. Full opportunity is given for the student to develop his natural resources and to learn to do

Biological Course.

Subject.	Term. I	Term. II	Term. III
Freshman Year.			
Mathematics 404	(2)	.....	.....
Trigonometry 406	.....	5	.....
English 226	4(2)	4(2)	4(2)
History 163	3*	3*	3*
Latin 341	3*	3*	3*
German 360	3**	3**	3**
French 380	3**	3**	3**
Agronomy 21	.....	1	1(2)
Breeds and Scoring 41	1(4)	.....	.....
Farm Buildings 42	.....	(4)	.....
Pomology 261	.....	.....	(2)
Vegetable Gardening 280	.....	(2)	.....
Landscape Gardening 300	1(2)	.....	.....
Botany 63	.....	.....	2(4)
Zoology 241	2(4)	.....	.....
Chemistry 81	.....	4(2)	4(2)
Freehand Drawing 423	(4)	.....	.....
Mechanical Drawing 424	(4)	.....	.....
Woodwork 426	.....	.....	(4)
Junior Year.			
English Literature 230	2	2	.....
AdvancedComposition 231	1(2)	1(2)	1
Public Speaking 232	(2)	(2)	(2)
Civil Government 140	3	3	.....
Business Law 141	.....	.....	3
Logic 1	.....	.....	2
German 362	3*	3*	3*
French 382	3*	3*	3*
Plant Morphology 67	(6)†	.....	.....
Economic Plants 68	.....	2(4)	.....
Seed Analysis 69	.....	1(4)†	.....
Micro Botany 70	.....	.....	2(4)†
Vegetable Pathology 72	.....	.....	2(4)
Botany 73	.....	.....	1(4)†
EconomicEntomology 244	2(4)	.....	.....
Entomology 245	1(4)!	.....	.....
Zoology 246	1(6)	1(4)	.....
Systematic Entomology 247	.....	1(4)!	2(4)!
Entomology 248	.....	.....	1(4)!
Geology 87	2(2)	.....	.....
Bacteriology 100, 101	.....	(8)	(8)

Subject.	Term. I	Term. II	Term. III
Sophomore Year.			
Physics 201	3(2)	3(4)	3(4)
Composition 227	1(2)	1(2)	1(2)
Public Speaking 228	(2)	(2)	(2)
American Literature 229	2	2	.....
English Literature 230	.....	.....	2
German 361	3*	3*	3*
French 381	3*	3*	3*
Farm Crops & Drainage 34	.....	.....	2(4)
Plant Histology 65	1(6)	.....	.....
Plant Physiology 66	.....	1(6)	2(4)
Zoology 242	2(4)	2(4)	.....
Entomology 243	.....	.....	2(4)
Chemistry 81	3(4)	.....	.....
Qualitative Analysis 83	.....	1(6)	.....
Senior Year.			
Composition 235	1	1	1
Political Economy 143	4	4	4
Psychology 2	4	.....	.....
German 362	.....	4*	4*
French 382	.....	4*	4*
Botany 74	4(6)†	4(6)†	4(6)†
Entomology 252	4(6)!	4(6)!	4(6)!
Botany 74 or Entomology 252	3(6)	3(6)	3(6)
Research & Thesis 75, 255	1(4)	1(4)	1(4)

*Courses marked with asterisks are alternative.
†For students specializing in Botany.
!For students specializing in Entomology.

work on his own responsibility. A large part of his time is spent in both practical and theoretical biological studies, without neglect-

ing the cultural studies which are a necessary foundation for every specialist.

CHEMICAL COURSE.

The Course in Chemistry is essentially the same as the other science courses until the second term of the Sophomore Year, though any of the four-year courses would prepare for this, as the amount of chemistry is the same in all courses to the beginning of the Second

Chemical Course.

Subject.	Term. I	II	III
Freshman Year.			
Mathematics 404	(2)	.....	.....
Solid Geometry 405	4	.....	.....
Trigonometry 406	.....	5	.....
Algebra 407	.....	.....	3
English 226	4(2)	4(2)	4(2)
History 163	3*	3*	3*
Latin 341	3*	3*	3*
German 360	3**	3**	3**
French 380	3**	3**	3**
Agronomy 21	.....	1	1(2)
Vegetable Gardening 280	.....	(2)	.....
Botany 63	.....	.....	2(4)
Zoology 241	2(4)	.....	.....
Chemistry 81	.....	4(2)	4(2)
Freehand Drawing 423	(4)	.....	.....
Mechanical Drawing 424	(2)	(4)	.....
Woodwork 426	(4)	.....	.....
Junior Year.			
English Literature 230	2	2	.....
Advanced Composition 231	1(2)	1(2)	1
Public Speaking 232	(2)	(2)	(2)
Civil Government 140	3	3	.....
Business Law 141	.....	.....	3
Logic 1	.....	.....	2
German 362	3*	3*	3*
French 382	3*	3*	3*
Micro Botany 70	.....	.....	2(4)
Geology 87	2(2)	2	.....
Stoichiometry 89	1	1	1
Quantitative Analysis 90	1(12)	1(10)	1(8)
Organic Chemistry 91	3	3(4)	3(4)

Subject.	Term. I	II	III
Sophomore Year.			
Physics 201	3(2)	3(4)	3(4)
Composition 227	1(2)	1(2)	1(2)
Public Speaking 228	(2)	(2)	(2)
American Literature 229	2	2	.....
English Literature 230	.....	.....	2
German 361	3*	3*	3*
French 381	3*	3*	3*
Plant Histology 65	1(6)	.....	.....
Plant Physiology 66	.....	1(6)	.....
Zoology 242	2(4)	2(4)	.....
Chemistry 81	3(4)	.....	.....
Qualitative Analysis 82	.....	(8)	1(8)
Theoretical Chemistry 85	.....	.....	2
Mineralogy 86	.....	.....	1(4)
Electricity and Magnetism 181	.....	.....	2
.....	.....	.....	.....
Senior Year.			
Composition 235	1	1	1
Political Economy 143	4	4	4
Agricultural Chemistry 92	4	.....	.....
Agricultural Analysis 93	(20)	.....	.....
Physiological Chemistry 94	4(4)	.....	.....
Industrial Chemistry 95	.....	3	3
Physical Chemistry 96	.....	3(20)	3
Agricultural Analysis 97	.....	.....	(16)
Bacteriology 100, 101	.....	(8)	(8)
Research & Thesis 98	.....	.....	2
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....

*Courses marked with asterisks are alternative.

Term of the Sophomore Year, and the demands on the agricultural or technical chemist are now so varied that a foundation with more of the essentials of the agricultural or the engineering courses is often desirable.

Beginning with the Second Term of the Sophomore Year the major part of the student's time is devoted to chemistry, the practical work in the laboratory occupying approximately half of his time. The Course is essentially a course in agricultural chemistry, fitting the graduate for positions in agricultural colleges, experiment stations and the United States Department of Agriculture.

CANNING COURSE.

The great importance of the canning industry in Maryland; the fact that it is, to a great extent, an agricultural industry, and the further fact that the suggestion of a Course has met with so many hearty indorsements from prominent canners, has caused the College

Canning Course.

Subject.	Term. I	Term. II	Term. III
Freshman Year.			
Mathematics 404	(2)	.....	.....
Solid Geometry 405	4	.....	.....
Trigonometry 406	.....	5	.....
English 226	4(2)	4(2)	4(2)
History 163	3*	3*	3*
Latin 341	3*	3*	3*
German 360	3**	3**	3**
French 380	3**	3**	3**
Agronomy 21	.....	1	1(2)
Vegetable Gardening 280	.....	(2)	.....
Pomology 261	.....	.....	(2)
Botany 63	.....	.....	2(4)
Zoology 241	2(4)	.....	.....
Chemistry 81	.....	4(2)	4(2)
Freehand Drawing 423	(4)	.....	.....
Mechanical Drawing 424	(2)	(4)	.....
Woodwork 426	(4)	.....	(4)
Junior Year.			
English Literature 220	2	2	.....
Advanced Composition 231	1(2)	1(2)	1
Public Speaking 232	(2)	(2)	(2)
Civil Government 140	3	3	.....
Business Law 141	.....	.....	3
Logic 1	.....	.....	2
Vegetable Growing 282	.....	1(4)	.....
Vegetable Culture 284	.....	.....	2
Micro Botany 70	.....	.....	2(4)
Vegetable Pathology 72	.....	.....	2(4)
Economic Entomology 244	2(4)	.....	.....
Quantitative Analysis 90	1(6)	.....	.....
Organic Chemistry 91	3	3(4)	.....
Bacteriology 100, 101	.....	(8)	(8)
Canning Technology	2(4)	3(4)	3(2)
Electric Laboratory 183	(4)	.....	.....

Subject.	Term. I	Term. II	Term. III
Sophomore Year.			
Physics 201	3(2)	3(4)	.....
Composition 227	1(2)	1(2)	1(2)
Public Speaking 228	(2)	(2)	(2)
American Literature 229	2	2	.....
English Literature 230	.....	.....	2
German 361	3*	3*	3*
French 381	3*	3*	3*
Soils 22	2(4)	2(4)	.....
Farm Crops & Drainage 24	.....	.....	2(4)
Plant Histology 65	1(6)	.....	.....
Plant Physiology 66	.....	1(6)	.....
Vegetable Growing 281	.....	.....	1(4)
Entomology 243	.....	.....	2(4)
Chemistry 81	3(4)*	.....	.....
Qualitative Analysis 82	.....	(8)	1(6)
Electricity and Magnetism 181	.....	.....	2
Senior Year.			
Composition 235	1	1	1
Political Economy 143	4	4	4
Viticulture 269	2	.....	.....
Plant Breeding 273	.....	2	2(2)
Advanced Pomology 275	.....	.....	2(2)
Market Gardening 285	2(6)	(12)	(6)
Agricultural Chemistry 92	4	.....	.....
Agricultural Analysis 93	(4)	.....	.....
Physical Chemistry 96	.....	(12)	.....
Agricultural Analysis 97	.....	.....	(8)
Canning Technology	3(4)	4(4)	5(4)
Practical Problems 127	(4)	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....

*Courses marked with asterisks are alternative.

uthorities to establish a Course in Canning, in order that young nen interested may have an opportunity to become acquainted with he underlying sciences, and at the same time secure a liberal edu-:ation.

During the first two years of the Course the studies will not differ nuch from those of the other courses. After this a large part of he student's time will be occupied with sciences relating directly :o the canning industry, such as bacteriology, chemistry, agriculture, horticulture, and canning technology. This latter will cover a wide range and will include the theory and practice of canning in various .ines, experimental work, and lectures from persons of national repu-tation. Assistance in these lectures has been promised by officers of the National Canners' Association and others.

A canning expert is to be engaged to take charge of the technical instruction in canning, which will include both theoretical and lab-oratory work.

Routine and factory experience are expected to be gained by students spending at least two summers, usually devoted to vacation, in a canning factory.

GENERAL SCIENCE COURSE.

The General Science Course is offered to those young men who have not chosen as their vocation in life any of the technical profes-sions, but who are seeking for such general culture as will fit them to become, after graduation, useful members of society. Young men desiring to study law, or medicine, or the liberal arts, or to become teachers, will find in the curriculum of this Course a highly satisfactory preparation for such work. While emphasis has been placed upon subjects, such as English, language, literature, history, mathematics, etc., the natural sciences occupy a prominent place in the Course and the range of electives beginning in the Junior Year will enable each to choose for himself, under certain necessary regulations, such a group of studies as will be best adapted to his own peculiar requirements.

General Science Course.

Subject.	Term. I	Term. II	Term. III
Freshman Year.			
Mathematics 404	(2)	.....	.....
Solid Geometry 405	4	.....	.....
Trigonometry 406	.....	5	.....
English 226	4(2)	4(2)	4(2)
History 163	3	3	3
Latin 341	3	3	3
German 360	3*	3*	3*
French 380	3*	3*	3*
Vegetable Gardening 280	.....	(2)	.....
Botany 63	.....	.....	2(4)
Zoology 241	2(4)	.....	.....
Chemistry 81	.....	4(2)	4(2)
Freehand Drawing 423	(4)	.....	.....
Mechanical Drawing 424	.....	.....	(4)
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
Junior Year.			
English Literature 230	2	2	.....
Advanced Composition 231	1(2)	1(2)	1
Public Speaking	(2)	(2)	(2)
English 233.....223	(2)	1(2)	.....
Public Speaking 234	.....	.....	1
Civil Government 140	3	3	.....
Business Law 141	.....	.....	3
History 165	3*	3*	3*
Logic 1	.....	.....	2
German 362	3*	3*	3*
French 382	3*	3*	3*
Principles of Breeding 44	3*	.....	.....
Practical Small Fruit Culture 265	.....	2(2)*	.....
Greenhouse Management 302	2(2)*	.....	.....
Floriculture 304	.....	2(2)*	2(4)*
Plant Morphology 67	(6)*	.....	.....
Vegetable Pathology 72	.....	.....	2(4)*
Botany 73	.....	.....	1(4)*
Systematic Entomology 247	.....	1(4)*	2(4)*
Geology 87	2(2)	2	.....
Organic Chemistry 88	4	.....	.....
Quantitative Analysis 90	1(4)*	(6)*	(6)*
Bacteriology 100, 101	.....	(8)	(8)*
Surveying 126	.....	.....	2(4)

Subject.	Term. I	Term. II	Term. III
Sophomore Year.			
Physics 201	3(2)	3(4)	3(4)
Composition 227	1(2)	1(2)	1(2)
Public Speaking 228	(2)	(2)	(2)
American Literature 229	2	2	.....
English Literature 230	.....	.....	2
American History 164	4	4	3
Latin 342	4*	4*	4*
German 361	3*	3*	3*
French 381	3*	3*	3*
Principles of Pomology 262	2(4)*	.....	.....
Plant Histology 65	1(6)*	.....	.....
Plant Physiology 66	.....	1(6)*	2(4)*
Zoology 242	2(4)*	2(4)*	.....
Entomology 243	.....	.....	2(4)*
Chemistry 81	3(4)	.....	.....
Qualitative Analysis 83	.....	1(6)	.....
Quantitative Analysis 84	.....	.....	1(8)
Senior Year.			
Composition 235	1	1	1
Public Speaking 236	4*	4*	4*
English Literature 237	4*	4*	4*
Political Economy 143	4	4	4
Political Science 144, 145, 146	4*	4*	4*
Rural Economics 147	4*	4*	4*
Psychology 2	4	.....	.....
History of Education 3	.....	4	.....
Principles of Education 4	.....	.....	4
Agricultural Education 5	3(2)*	.....	.....
Organization and Materials 6	.....	3(2*)	.....
Rural Organization 7	.....	.....	3(2)*
German 362	4*	4*	4*
French 382	4*	4*	4*
Dairying 47	.....	2(4)*	.....
Landscape Design 308	2(4)*	.....	.....
Planting Plans 310	.....	2(4)*	.....
Garden Flowers 314	.....	.....	2(4)*
Farm Forestry 320	.....	.....	2(4)*
Agricultural Chemistry 92	4*	.....	.....
Agricultural Analysis 97	.....	.....	(8)*
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....

*Courses marked with asterisks are alternative. Students must elect from the alternative courses a sufficient number to cover with the required courses 25 periods of work. One election must be a modern language.

CIVIL ENGINEERING COURSE.

This Course offers a young man an opportunity to obtain training in civil engineering which will enable him to engage in practical engineering work in the field or in the drafting room with the assurance that he has the necessary preparation to profit by the

Civil Engineering Course.

Subject.	Term. I	Term. II	Term. III
Freshman Year.			
Mathematics 404	(2)	.....	.....
Solid Geometry 405	4	.....	.....
Trigonometry 406	.....	5	2
Algebra 407	.....	.....	3
Rhetoric 226	4(2)	4(2)	4(2)
History 163	3	3	3
German 360	3*	3*	3*
French 380	3*	3*	3*
Chemistry 81	.....	4(2)	4(2)
Engineering Drawing 120	(4)	.....	.....
Surveying 121	.....	2	(4)
Freehand Drawing 423	(4)	.....	.....
Mechanical Drawing 424	(4)	(4)	(4)
Woodwork 426	(6)	.....	.....
Junior Year.			
Calculus 409	5	.....	.....
AdvancedComposition 231	1(2)	1(2)	1
Public Speaking 232	(2)	(2)	(2)
Civil Government 140	3	3	.....
Business Law 141	.....	.....	3
Logic 1	.....	.....	2
Geology 87	2(2)	2	.....
Engineerlng Drawing 120	(6)	(6)	(4)
Surveying 121	2(4)	.....	.....
Mechanics 122	4	.....	.....
Railway Engineering 123	.....	3	3
Structural Design 124	.....	2(4)	2(4)
Mechanics of Materials125	.....	3	5
Practical Problems 127	.....	.....	(8)
Graphic Statics 434	.....	4	.....

Subject.	Term. I	Term. II	Term. III
Sophomore Year.			
Analytics 408	5	3	.....
Calculus 409	.....	2	5
Physics 201	3(2)	3(4)	3(4)
Composition 227	1(2)	1(2)	1(2)
Public Speaking 228	(2)	(2)	(2)
German 361	3*	3*	3*
French 381	3*	3*	3*
Chemistry 81	3(4)	.....	.....
Mineralogy 86	.....	.....	1(4)
Surveying 121	(4)	4	2(4)
Descriptive Geometry 427	1(4)	2(6)	2
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
Senior Year.			
Composition 235	1	1	1
Political Economy 143	4	4	4
History of Education 3	.....	4*	.....
Principles of Education 4	.....	.....	4*
German 362	.....	4*	4*
French 382	.....	4*	4*
Practical Problems 127	(12)	(4)	(4)
Concrete 128	4	.....	.....
Hydraulics 129	3	5	.....
Estimates of Cost 130	.....	1(4)	(2)
Highway Engineering 131	.....	.....	5
Structural Design 435	2(4)	2(4)*	2(4)*
Mechanics of Eng. 436	3	4	4
Research & Thesis 132	.....	(4)	(8)
.....	.....	.....	.....

*Courses marked with asterisks are alternative.

experience thus afforded; or which will entitle him to advanced standing, if he desires to pursue a more extended course at a technical school of a higher grade. The curriculum, as outlined, includes not only studies having cultural value, but the sciences which form the basis of engineering. Students who have found themselves de-

ficient in ability to learn mathematics are not advised to enter an engineering course.

A thesis dealing with some problem in engineering will be required of all applicants for the degree of Bachelor of Science in Civil Engineering.

All engineering students in the Junior and Senior Classes are required to spend a portion of their time in the reading of the current engineering magazines.

ELECTRICAL ENGINEERING COURSE.

This Course was introduced because of the great demand for young men who are not only well trained in the practical construc-

Electrical Engineering Course.

Subject.	Term. I	Term. II	Term. III
Freshman Year.			
Mathematics 404	(2)	.....	.....
Solid Geometry 405	4	.....	.....
Trigonometry 406	.....	5	2
Algebra 407	.....	.....	3
Rhetoric 226	4(2)	4(2)	4(2)
History 163	3	3	3
German 360	3*	3*	3*
French 380	3*	3*	3*
Chemistry 81	.....	4(2)	4(2)
Surveying 121	.....	.....	(4)
Freehand Drawing 423	(4)	.....	.....
Mechanical Drawing 424	(4)	(4)	(4)
Technical Instruction 425	2	.....	.....
Woodwork 426	(6)	(4)	.....
Junior Year.			
Calculus 409	5	.....	.....
AdvancedComposition 231	1(2)	1(2)	1
Public Speaking 232	(2)	(2)	(2)
Civil Government 140	3	3	.....
Business Law 141	.....	.....	3
Logic 1	.....	.....	2
Mechanics 122	4	.....	.....
Mechanics of Materials125	.....	3	5
Dynamos 182	3	4	3
Electrical Laboratory 183	(6)	(6)	(6)
Batteries 184	.....	.....	2
Electrical Design 185	.....	.....	(6)
Machine Design 432	(4)	(4)	.....
Machine Work 433	(4)	(6)	(4)
Graphic Statics 434	.....	4	.....

Subject.	Term. I	Term. II	Term. III
Sophomore Year.			
Analytics 408	5	3	.....
Calculus 409	.....	2	5
Physics 201	3(2)	3(4)	3(4)
Composition 227	1(2)	1(2)	1(2)
Public Speaking 228	(2)	(2)	(2)
German 361	3*	3*	3*
French 381	3*	3*	3*
Chemistry 81	3(4)	.....	.....
Electricity 180	.....	3(2)	3(2)
Descriptive Geometry 427	1(4)	2(6)	2
Blacksmithing 428	(4)	.....	.....
Steam Engines 431	.....	.....	3
.....	.....	.....	.....
.....	.....	.....	.....
Senior Year.			
Composition 235	1	1	1
Political Economy 143	4	4	4
Hydraulics 129	3	5	.....
Electric Design 185	(6)	.....	.....
Alternators 186	5	3	5
Electric Laboratory 187	(8)	(8)	(6)
Electric Lighting 188	3	.....	.....
Electric Power Plants 189	.....	3	.....
Telephones & Telegraphs 190	.....	2(2)	2(2)
Electric Design 191	.....	.....	1(6)
Electric Railways 192	.....	.....	3
Thermodynamics 437	2	.....	.....
Research & Thesis	.....	(4)	(4)
.....	.....	.....	.....

*Courses marked with asterisks are alternative.

tion and operation of electrical machines, but who have a thorough knowledge of the principles and laws controlling the phenomena and forces with which they have to deal.

The general plan of the Course is to make the student thoroughly acquainted with the scientific laws which are the basis of the profession, and at the same time to train him to adapt the laws to practice, to use his own judgment, and to apply honest and accurate methods in all his work.

The curriculum, as outlined, includes those studies which provide a broad general culture, as well as a good foundation for the engineering work which follows. From the beginning of the Second Term of the Sophomore Year the electrical training extends continuously throughout the Course.

MECHANICAL ENGINEERING COURSE.

The curriculum of the several years of this Course is outlined so as to give general culture as well as a proper foundation for the profession of Mechanical Engineer.

Young men not having a natural taste for mathematics and the handling of tools are advised not to pursue this Course. The practical work of this Course is most thorough. The student is familiarized from the first with the reading of engineering drawings and with the use of tools and implements used in wood and iron work. He is given daily practice in the shops and is encouraged to develop whatever inventive talent he may have. Results have shown that students completing this Course have no difficulty in securing employment immediately upon graduation in the field of mechanics or mechanical engineering.

Mechanical Engineering Course.

Subject.	Term. I	II	III
Freshman Year.			
Mathematics 404	(2)	.....	.....
Solid Geometry 405	4	.....	.....
Trigonometry 406	.....	5	2
Algebra 407	.....	.....	3
English 226	4(2)	4(2)	4(2)
History 163	3	3	3
German 360	3*	3*	3*
French 380	3*	3*	3*
Chemistry 81	.....	4(2)	4(2)
Freehand Drawing 423	(4)	.....	.....
Mechanical Drawing 424	(4)	(4)	(4)
Technical Instruction 425	2	.....	.....
Woodwork 426	(6)	(4)	(4)
Junior Year.			
Calculus 409	5	.....	.....
Advanced Composition 231	1(2)	1(2)	1
Public Speaking 232	(2)	(2)	(2)
Civil Government 140	3	3	.....
Business Law 141	.....	.....	3
Logic 1	.....	.....	2
Mechanics 122	4	.....	.....
Mechanics of Materials 125	.....	3	5
Dynamos 182	3	4	3
Machine Design 432	2(4)	2(6)	2(8)
Machine Work 433	(6)	(6)	(8)
Graphic Statics 434	.. ...	4	.....

Subject.	Term. I	II	III
Sophomore Year.			
Analytics 408	5	3	.....
Calculus 409	.....	2	5
Physics 201	3(2)	3(4)	3(4)
Composition 227	1(2)	1(2)	1(2)
Public Speaking 228	(2)	(2)	(2)
German 361	3*	3*	3*
French 381	3*	3*	3*
Chemistry 81	3(4)	.....	.....
Descriptive Geometry 427	1(4)	2(6)	2
Blacksmithing 428	(4)	(4)	.....
Technical Mechanics 429	.....	2	.....
Foundry 430	.....	.....	(8)
Steam Engines 431	.....	.....	3
Senior Year.			
Composition 235	1	1	1
Political Economy 143	4	4	4
Psychology 2	4*	.....	.....
German 362	4*	.....	.....
French 382	4*	.....	.....
Structural Design 435	2(4)	2(4)	2(6)
Mechanics of Eng. 436	3	4	4
Thermodynamics 437	2	3	3
Heat and Ventilation 438	2(2)	.....	.....
Exp. Engineering 439	(8)	(8)	(4)
Hydromechanics 440	.....	3	.....
Research & Thesis 441	.....	(4)	2(8)

*Courses marked with asterisks are alternative,

SYNOPSIS OF COURSES.

The figures represent the number of periods per week, those in parenthesis indicating practical or laboratory periods; the others, theoretical or recitation periods.

Four Year Courses—1914-15.

Term and Subject.	Agriculture			Horticulture	Biology	Chemistry	Canning	General Science	Engineering		
	Agricultural Education	Agronomy	Animal Husbandry						Civil	Electrical	Mechanical
Freshman Year.											
I.											
Mathematics 404	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Solid Geometry 405	.....	.....	.....	.....	.....	4	4	4	4	4	4
English 226	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)
History 163	3*	3*	3*	3*	3*	3*	3*	3	3	3	3
Latin 341	3*	3*	3*	3*	3*	3*	3*	3	.....	.....	.....
German 360	3**	3**	3**	3**	3**	3**	3**	3**	3**	3**	3**
French 380	3**	3**	3**	3**	3**	3**	3**	3**	3**	3**	3**
Breeds and Scoring 41	1(4)	1(4)	1(4)	1(4)	1(4)	.....	.....	.....	.....	.....	.....
Landscape Gardening 300	1(2)	1(2)	1(2)	1(2)	1(2)	.....	.....	.....	.....	.....	.....
Zoology 241	2(4)	2(4)	2(4)	2(4)	2(4)	2(4)	2(4)	2(4)	.....	.....	.....
Engineering Drawing 120	.....	.....	.....	.....	.....	.....	.....	.....	(4)	.....	.....
Freehand Drawing 423	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)
Mechanical Drawing 424	(4)	(4)	(4)	(4)	(4)	(2)	(2)	.....	(4)	(4)	(4)
Technical Instruction 425	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	2
Woodwork 426	.....	.....	.....	.....	.....	(4)	(4)	.....	(6)	(6)	(6)
II.											
Trigonometry 406	5	5	5	5	5	5	5	5	5	5	5
English 226	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)
History 163	3*	3*	3*	3*	3*	3*	3*	3	3	3	3
Latin 341	3*	3*	3*	3*	3*	3*	3*	3	.....	.....	.....
German 360	3**	3**	3**	3**	3**	3**	3**	3**	3**	3**	3**
French 380	3**	3**	3**	3**	3**	3**	3**	3**	3**	3**	3**
Agronomy 21	1	1	1	1	1	1	1	.....	.....	.....	.....
Farm Buildings 42	(4)	(4)	(4)	(4)	(4)	.....	.....	.....	.....	.....	.....
Vegetable Gardening 280	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	.....	.....	.....
Chemistry 81	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)
Surveying 121	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	.....
Mechanical Drawing 424	.....	.....	.....	.....	.....	(4)	(4)	.....	(4)	(4)	(4)
Woodwork 426	.....	.....	.....	.....	.....	.....	.....	.....	.....	(4)	(4)
III.											
Trigonometry 406	.....	.....	.....	.....	.....	.....	.....	.....	2	2	2
Advanced Algebra 407	.....	.....	.....	.....	.....	3	.....	.....	3	3	3
English 226	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)
History 163	3*	3*	3*	3*	3*	3*	3*	3	3	3	3
Latin 341	3*	3*	3*	3*	3*	3*	3*	3	.....	.....	.....
German 360	3**	3**	3**	3**	3**	3**	3**	3**	3**	3**	3**
French 380	3**	3**	3**	3**	3**	3**	3**	3**	3**	3**	3**
Agronomy 21	1(2)	1(2)	1(2)	1(2)	1(2)	1(2)	1(2)	.....	.....	.....	.....

Four-Year Courses—Continued.

Term and Subject.	Agriculture			Horticulture	Biology	Chemistry	Canning	General Science	Engineering		
	Agricultural Education	Agronomy	Animal Husbandry						Civil	Electrical	Mechanical
Freshman Year—Continued											
III—Continued.											
Pomology 261	(2)	(2)	(2)	(2)	(2)	.....	(2)	.....	.....	.....	.....
Botany 63	2(4)	2(4)	2(4)	2(4)	2(4)	2(4)	2(4)	2(4)	.....	.....	.....
Chemistry 81	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)
Surveying 121	.....	.....	.....	.....	.....	.....	.....	.....	(4)	(4)	.....
Mechanical Drawing 424	.....	.....	.....	.....	.....	.....	.....	(4)	(4)	(4)	(4)
Woodwork 426	(4)	(4)	(4)	(4)	(4)	.....	(4)	.....	.....	.....	(4)
Sophomore Year.											
I											
Analytics 408		.....	.....	.....	.....	.....		.....	5	5	5
Physics 201		.....	.....	.....	3(4)	3(4)		3(4)	3(4)	3(4)	3(4)
Eng. Comp. 227		1	1	1	1	1		1	1	1	1
Am. Literature 229		3	3	3	3	3		3	.....	.....	.....
Public Speaking 228		(2)	(2)	(2)	(2)	(2)		(2)	(2)	(2)	(2)
Latin 342		.....	.....	.....	.....	.....		4	.....	.....	.....
German 361		3	3	3	3	3		3	3	3	3
Soils 22		2(4)	2(4)	2(4)	.....	.....		.....	.....	.....	.....
Live Stock Man. 43		2(4)	2(4)	.....	.....	.....		.....	.....	.....	.....
Landscape Gar. 301		.....	.....	2(4)	.....	.....		.....	.....	.....	.....
Plant Histology 65		1(6)	1(6)	1(6)	1(6)	1(6)		.....	.....	.....	.....
Zoology 242		.....	.....	.....	2(2)	2(2)		2(2)	.....	.....	.....
Chemistry 81		4(2)	4(2)	4(2)	4(2)	4(2)		4(2)	4(2)	4(2)	4(2)
Surveying 121		.....	.....	.....	.....	.....		.....	(4)	.....	.....
Desc. Geometry 427		.....	.....	.....	.....	.....		.....	1(4)	1(4)	1(4)
Shopwork 428		.....	.....	.....	.....	.....		.....	.....	(4)	(4)
II											
Analytics 408		.....	.....	.....	.....	.....		.....	3	3	3
Calculus 409		.....	.....	.....	.....	.....		.....	2	2	2
Physics 201		.....	.....	.....	3(2)	3(2)		3(2)	3(2)	3(2)	3(2)
Eng. Comp. 227		1	1	1	1	1		1	1	1	1
Am. Literature 229		3	3	3	3	3		3	.....	.....	.....
Public Speaking 228		(2)	(2)	(2)	(2)	(2)		(2)	.....	.....	.....
Latin 342		.....	.....	.....	.....	.....		4	.....	.....	.....
German 361		3	3	3	3	3		3	3	3	3
Soils 22		2(4)	2(4)	2(4)	.....	.....		.....	.....	.....	.....
Farm Buildings 42		2(4)	2(4)	.....	.....	.....		.....	.....	.....	.....
Pomology 262		.....	.....	2(4)	.....	.....		.....	.....	.....	.....
Plant Physiology 66		2(4)	2(4)	2(4)	2(4)	2(4)		.....	.....	.....	.....
Zoology 242		.....	.....	.....	2(4)	2(4)		2(4)	.....	.....	.....
Chemistry 81		3(4)	3(4)	3(4)	3(4)	3(4)		3(4)	3(4)	3(4)	3(4)
Surveying 121		.....	.....	.....	.....	.....		.....	3	.....	.....
Electricity 180		.....	.....	.....	.....	.....		.....	.....	3	.....
Desc. Geometry 427		.....	.....	.....	.....	.....		.....	2(4)	2(4)	2(6)
Shopwork 428		.....	.....	.....	.....	.....		.....	.....	.....	(4)

Four-Year Courses—Continued.

Term and Subject.	Agriculture		Horti-culture	Biology	Chemistry	General Science	Engineering		
	Agronomy	Animal Husbandry					Civil	Electrical	Mechanical
Sophomore Year—Continued.									
III									
Calculus 409	.....	.....	.....	.....	.....	.....	5	5	5
Physics 201	.....	.....	.....	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)
Eng. Comp. 227	1	1	1	1	1	1	1	1	1
Am. Literature 229	3	3	3	3	3	3	.....	.....	.....
Public Speaking 228	(2)	(2)	(2)	(2)	(2)	(2)	.....	.....	.....
Latin 342	.....	.....	.....	.....	.....	4	.....	.....	.....
German 361	3	3	3	3	3	3	3	3	3
Agronomy 24	2(4)	2(4)	2(4)	.....	.....	.....	.....	.....	.....
Fertilizers 23	2(4)	2(4)	.....	.....	.....	.....	.....	.....	.....
Veg. Culture 281	.....	.....	2(4)	.....	.....	.....	.....	.....	.....
Zoology 242	.....	.....	.....	2(2)	2(2)	2(2)	.....	.....	.....
Entomology 243	2(4)	2(4)	2(4)	2(4)	.....	.....	.....	.....	.....
Chemistry 81	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)
Qual. Analysis 82	.....	.....	.....	.....	2(4)	.....	.....	.....	.....
Surveying 121	.....	.....	.....	.....	.....	.....	1(4)	.....	.....
Electricity 180	.....	.....	.....	.....	.....	.....	.....	3	.....
Desc. Geometry 427	.....	.....	.....	.....	.....	.....	2(2)	2(2)	2
Shopwork 430	.....	.....	.....	.....	.....	.....	.....	.....	(8)
Junior Year.									
I									
Calculus 409	.....	.....	.....	.....	.....	.....	5	5	5
Eng. Literature 230	3	3	3	3	3	3	3	3	3
English 231	.....	.....	.....	.....	.....	4*	.....	.....	.....
Eng. Comp. 233	1	1	1	1	1	1	1	1	1
History 165	.....	.....	.....	.....	.....	4*	.....	.....	.....
Public Speaking 234	.....	.....	.....	.....	.....	4*	.....	.....	.....
Civics 140	3	3	3	3	3	3	3	3	3
German 362	3	3	3	3	3	3	.....	.....	.....
French 380	.....	.....	.....	.....	.....	4	.....	.....	.....
Crop Production 25	3(4)	.....	.....	.....	.....	.....	.....	.....	.....
Farm Management 29	2	.....	.....	.....	.....	.....	.....	.....	.....
Breeds 41	.....	1(6)	.....	.....	.....	.....	.....	.....	.....
Breeding 44	.....	3	.....	.....	.....	.....	.....	.....	.....
Com. Pomology 264	.....	.....	2(2)‖	.....	.....	.....	.....	.....	.....
Veg. Culture 282	.....	.....	2(2)‡	.....	.....	.....	.....	.....	.....
Landscape Gar. 311	.....	.....	2(2)§	.....	.....	2(2)**	.....	.....	.....
Plant Physiology 66	.....	.....	.....	(6)†	.....	.....	.....	.....	.....
Plant Morphology 67	.....	.....	2(4)	2(4)	.....	2(4)*	.....	.....	.....
Eco. Entomology 244	.....	.....	2(4)	2(4)	.....	2(4)*	.....	.....	.....
Entomology 245	.....	.....	.....	1(4)!	.....	.....	.....	.....	.....
Qual. Analysis 82,83	1(8)	1(8)	1(6)	1(6)	1(8)	1(6)	.....	.....	.....
Chemistry 84	.....	.....	.....	.....	(4)	(4) *	.....	.....	.....
Theo. Chemistry 85	.....	.....	.....	.....	2	2	.....	.....	.....
Org. Chemistry 88,91	3	3	.....	.....	3	3*	.....	.....	.....
Mineralogy 86	.....	.....	.....	.....	1(4)	1(4)*	1(4)	.....	.....
Surveying 121	.....	.....	.....	.....	.....	.....	4(4)	.....	.....
Drawing 120	.....	.....	.....	.....	.....	.....	(8)	.....	.....
Dynamos 182	.....	.....	.....	.....	.....	.....	.....	3	3
Elec. Lab. 183	.....	.....	.....	.....	.....	.....	.....	(4)	.....
Machine Design 432	.....	.....	.....	.....	.....	.....	.....	(4)	2(4)
Machine Work 433	.....	.....	.....	.....	.....	.....	.....	(6)	(6)
Steam Engines 431	.....	.....	.....	.....	.....	.....	.....	3	3

Four-Year Courses—Continued.

Term and Subject.	Agriculture		Horticulture	Biology	Chemistry	General Science	Engineering		
	Agronomy	Animal Husbandry					Civil	Electrical	Mechanical
Junior Year—Continued.									
II									
Eng. Literature 230.	3	3	3	3	3	3	3	3	3
English 231						4*			
Eng. Comp. 233	1	1	1	1	1	1	1	1	1
History 165						4*			
Public Speaking 234						4*			
Civics 140	3	3	3	3	3	3	3	3	3
German 362	3	3	3	3	3	3			
French 380						4			
Animal Nutrition 45		4(2)							
Anat. and Phys. 481	3	3							
Bacteriology 100	(8)	(8)	(8)	(8)	(8)	(8)**			
Small Fruits 263			1(4)‖			1(4)***			
Prac. Pomology 267.			2(4)‖						
Veg. Culture 283			2‡						
Veg. Culture 282			1(8)‡						
Floriculture 304			2(4)§			2(4)**			
GreenhouseCons.305			2(2)§						
Economic Plants 63.	2(4)		2(4)	2(4)					
Seed Analysis 69				1(6)†					
Zoology 246		1(4)*		1(4)		1(4)***			
Sys. Entomology 247				2(4)!					
Theo. Chemistry 85.					1				
Quan. Analysis 84,90	1(6)	1(4)*			1(12)	1(6)**			
Org. Chemistry 91					3	3***			
Drawing 120							(8)		
Railway Eng. 123							3		
Struct Design 124							2(4)		
Mech. Materials 125.							3	3	3
Dynamos 182								4	4
Elec. Lab. 183								(4)	
Machine Design 432.								(4)	2(4)
Machine Work 433								(6)	(6)
Graphic Statics 434							4	4	4
III									
Logic 1	2	2	2	2	2	2	2	2	2
English 231						4*			
Eng. Comp. 233	1	1	1	1	1	1	1	1	1
History 165						4*			
Public Speaking 232	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Public Speaking 234						4			
Business Law 141	3	3	3	3	3	3	3	3	3
German 362	3	3	3	3	3	3			
French 381						3			
Farm Machinery 26.	2(4)	2(4)	2(4)						
Dairying 47	3	3(4)							
Animal Nutrition 45		2(2)							
Small Fruits 266			2(4)‖			2(4)***			
Prac. Pomology 267.			2(2)‖						
Veg. Culture 283			2‡						
Veg. Culture 282			1(4)‡						
Veg. Culture 284			2‡						
Plant Materials 306			2(4)§			2(4)**			
Tree Surgery 307			1(4)§						
Micro Botany 70				2(4)†	2(4)	2(4)**			
Veg. Pathology 72	2(4)		2(4)	2(4)					
Botany 73				1(6)†					
Zoology 246		1(4)*		1(4)					
Sys. Entomology 247				2(4)!					
Entomology 248				1(6)!					
Theo. Chemistry 85.					1				
Quan. Analysis 84,90	1(4)	1(4)*				1(6)***			
Org. Chemistry 91					3				

Four-Year Courses—Continued.

Term and Subject.	Agriculture		Horti-culture	Biology	Chemistry	General Science	Engineering		
	Agronomy	Animal Husbandry					Civil	Electrical	Mechanical
Junior Year—Continued.									
III—Continued.									
Chemistry 90	.....	.....	.....	.....	2(10)	2(4)**	.....	.....	.....
Drawing 120	.....	.....	.....	.....	.....	.....	(4)	.....	.....
Railway Eng. 123	.....	.....	.....	.....	.....	.....	3	.....	.....
Struct. Design 124	.....	.....	.....	.....	.....	.....	2(4)	.....	.....
Mech. Materials 125	.....	.....	.....	.....	.....	.....	5	5	5
Practical Prob. 127	.....	.....	.....	.....	.....	.....	(8)	.....	.....
Dynamos 182	.....	.....	.....	.....	.....	.....	.....	3	3
Batteries 184	.....	.....	.....	.....	.....	.....	.....	2	.....
Elec. Lab. 183	.....	.....	.....	.....	.....	.....	.....	(6)	.....
Elec. Design 185	.....	.....	.....	.....	.....	.....	.....	(6)	.....
Machine Design 432	.....	.....	.....	.....	.....	.....	.....	.....	2(8)
Machine Work 433	.....	.....	.....	.....	.....	.....	.....	(4)	(8)
Research and Thesis	(2)	.....	.....	.....	.....	.....	.....	.....	.....
Senior Year.									
I									
English 230	.....	.....	.....	.....	.....	4	.....	.....	.....
Psychology 2	4	4	4	4	4	4	.....	.....	4*
Eng. Comp. 235	1	1	1	1	1	1	1	1	1
Economics 143	4	4	4	4	4	4	4	4	4
Economics 147	.....	.....	.....	.....	.....	4*	.....	.....	.....
Civics 144	.....	.....	.....	.....	.....	4*	.....	.....	.....
Latin 343	.....	.....	.....	.....	.....	4*	.....	.....	.....
German 362	.....	.....	.....	.....	.....	4*	.....	.....	4*
French 382	.....	.....	.....	.....	.....	4*	.....	.....	.....
Agronomy 27	3(4)	.....	.....	.....	.....	.....	.....	.....	.....
Farm Management 29	2(4)	.....	.....	.....	.....	.....	.....	.....	.....
Dairying 47	.....	1(6)*	.....	.....	.....	.....	.....	.....	.....
Stock Judging 46	.....	(8)	.....	.....	.....	.....	.....	.....	.....
Animal Nutrition 45	.....	3(4)	.....	.....	.....	.....	.....	.....	.....
Nut Culture 274	.....	.....	2(2)‖	.....	.....	.....	.....	.....	.....
Sys. Pomology 268	.....	.....	2(4)‖	.....	.....	.....	.....	.....	.....
Small&VineFr'ts 269	.....	.....	2(2)‖	.....	.....	.....	.....	.....	.....
Veg. Culture 285	.....	.....	4(8)‡	.....	.....	.....	.....	.....	.....
Landscape Des. 308	.....	.....	2(4)§	.....	.....	2(4)*	.....	.....	.....
Civic Art 309	.....	.....	2(2)§	.....	.....	.....	.....	.....	.....
Landscape Gardening 313	.....	.....	2§	.....	.....	.....	.....	.....	.....
Botany 74	.....	.....	.....	4(6)†	.....	.....	.....	.....	.....
Entomology 252	.....	.....	.....	4(6)!	.....	.....	.....	.....	.....
Botany 74 or Entomology 252	.....	.....	.....	3(6)	.....	.....	.....	.....	.....
Quan. Analysis 84	(4)	(4)	.....	.....	.....	.....	.....	.....	.....
Agr. Chemistry 92	4	4*	4	.....	4 (24)	4* (8)*	.....	.....	.....
Agr. Analysis 93	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hydraulics 129	.....	.....	.....	.....	.....	.....	3	3	.....
Concrete 128	.....	.....	.....	.....	.....	.....	4	.....	.....
Practical Prob. 127	.....	.....	.....	.....	.....	.....	(12)	.....	.....
Alternators 186	.....	.....	.....	.....	.....	.....	.....	5	.....
Elec. Lights 188	.....	.....	.....	.....	.....	.....	.....	3	.....
A.C. Laboratory 187	.....	.....	.....	.....	.....	.....	.....	(8)	.....
Elec. Design 191	.....	.....	.....	.....	.....	.....	.....	(6)	.....
Struct. Design 435	.....	.....	.....	.....	.....	.....	2(4)	.....	2(4)
Mech. of Eng. 436	.....	.....	.....	.....	.....	.....	3	.....	3
Thermodynamics437	.....	.....	.....	.....	.....	.....	.....	2	2
Heat and Vent. 438	.....	.....	.....	.....	.....	.....	.....	.....	2(2)
Exp'mental Eng. 439	.....	.....	.....	.....	.....	.....	.....	.....	(8)
Research and Thesis	(2)	(2)	(4)‖ 1(6)! (6)§	1(4)	.....	.....	.....	.....	.....

Four-Year Courses—Continued.

Term and Subject	Agriculture		Horticulture	Biology	Chemistry	General Science	Engineering		
	Agronomy	Animal Husbandry					Civil	Electrical	Mechanical
Senior Year—Continued.									
II									
English 230						4			
Pedagogics 3	4	4	4	4	4	4	4*		
Eng. Comp. 235	1	1	1	1	1	1	1	1	1
Economics 143	4	4	4	4	4	4	4	4	4
Economics 147						4*			
Civics 145						4*			
Latin 343						4*			
German 362			4			4*	4*		
French 382						4*			
Poultry 49		2							
Bacteriology 101	(8)	(8)							
Animal Diseases 482	5(6)	5(6)							
Sys. Pomology 268			2(2)‖						
Horticulture 270			1(2)‖						
Plant Breeding 273	2		2‖						
Veg. Culture 285			4(4)‡						
Planting Plans 310			2(6)§			2(4)*			
Floral Dec. 303			(2)§						
App. Entomology 253			2(4)						
Botany 74				4(6)†					
Entomology 252				4(6)!					
Botany 74 or Entomology 252				3(6)					
Chemistry 91					(16)				
Chemistry 94, 95, 96					6(4)	6(4)*			
Hydraulics 129							5	5	
Practical Prob. 127							(4)		
Est. of Cost 130							1(4)		
Alternators 186								3	
Elec. Power 189								3	
Tel. and Tel. 190								2(2)	
A. C. Laboratory 187								(8)	
Struct Design 435							2(4)*		2(4)
Mech. of Eng. 436							4		4
Thermodynamics 437									3
Hydromechanics 440									3
Exp'mental Eng. 439									(8)
Research and Thesis	(4)	(4)	(2)‖ (4)‡ (4)§	1(4)			(4)	(4)	(4)
III									
English 230						4			
Pedagogics 4	4	4	4	4	4	4	4*		
Eng. Comp. 235	1	1	1	1	1	1	1	1	1
Economics 143	4	4	4	4	4	4	4	4	4
Economics 147						4*			
Civics 146						4*			
Latin 343						4*			
German 362						4*	4*		
French 382						4*			
Agronomy 27	3(4)								
Animal Nutrition 45		2(2)							
Small Fruits 274			2(4)‖						
Pomology 275			2(2)‖						
Plant Breeding 273	2(2)		2(2)‖						
Veg. Culture 285			2(4)‡						
Veg. Culture 286			4(4)‡						
Floriculture 314			2§						
Landscape Prac, 312			2(8)§			2(4)*			
Farm Forestry 320	2(4)	2(4)	2(4)						
Animal Parasites 254		2(4)							

Four-Year Courses—Continued.

Term and Subject.	Agriculture		Horticulture	Biology	Chemistry	General Science	Engineering		
	Agronomy	Animal Husbandry					Civil	Electrical	Mechanical
Senior Year—Continued.									
III—Continued.									
Botany 74	.....	.....	.....	4(6)†	.....	.....	.....	.....	.....
Entomology 252	.....	.....	.....	4(6)!	.....	.....	.....	.....	.....
Botany 74 or Entomology 252	.....	.....	.....	3(6)	.....	.....	.....	.....	.....
Chemistry 96	.....	.....	.....	.....	5(2)	5(6)*	.....	.....	.....
Est. of Cost 130	.....	.....	.....	.....	.....	.....	(2)	.....	.....
Highway Engineering 131	.....	.....	.....	.....	.....	.....	5	.....	.....
Practical Prob. 127	.....	.....	.....	.....	.....	.....	(4)	.....	.....
Alternators 186	.....	.....	.....	.....	.....	.....	.....	5	.....
Tel. and Tel. 190	.....	.....	.....	.....	.....	.....	.....	2(2)	.....
Elec. Railways 192	.....	.....	.....	.....	.....	.....	.....	3	.....
A. C. Laboratory 187	.....	.....	.....	.....	.....	.....	.....	(6)	.....
Alt. Design 191	.....	.....	.....	.....	.....	.....	.....	1(6)	.....
Struct. Design 435	.....	.....	.....	.....	.....	.....	2(4)*	.....	2(6)
Mech. of Eng. 436	.....	.....	.....	.....	.....	.....	4	.....	4
Thermodynamics 437	.....	.....	.....	.....	.....	.....	.....	.....	3
Exp'mental Eng. 439	.....	.....	.....	.....	.....	.....	.....	.....	(4)
Research and Thesis	2(4)	3(4)	(4)‖ (4)‡ 2(4)§	1(4)	(20)	.....	(8)	(4)	2(8)

*Courses marked with asterisks are alternative. Senior students in the General Science Course must elect from the alternative courses a sufficient number to cover 12 periods of work.
‖For students specializing in Pomology.
‡For students specializing in Vegetable Culture.
§For students specializing in Landscape Gardening and Floriculture.
†For students specializing in Botany.
!For students specializing In Entomology.

Sub-Collegiate Courses.

Preparatory Year.				Sub-Freshman Year.			
Subject.	Term.			Subject.	Term.		
	I	II	III		I	II	III
Arithmetic 400	(2)	(2)	(2)	Algebra 402	4	4	4
Algebra 402	5	5	5	Plane Geometry 403	4	4	4
English 220	5	5	5	Physics 200	3	3	3
Public Speaking 221	(2)	(2)	(2)	English 222	5	5	5
U. S. History 160	5	5	.....	Public Speaking 223	(2)	(2)	(2)
English History 161	.....	.....	5	General History 162	2	3	3
Latin 340	4	4	4	Latin 341	3	3	3
Phys. Geography 31	.....	(4)	.....	Agronomy 20	.....	.....	(2)
Animal Husbandry 40	(2)	.....	.....	Sanitation 480	.....	(2)	.....
Horticulture 260	.....	.....	(2)	Botany 61	(2)	.....	.....
Plant Life 60	.....	.....	(2)	Entomology 240	.....	.....	(2)
Animal Life 240	(2)	.....	.....	Shopwork 422	(4)	.....	.....
Freehand Drawing 420	(4)	(4)	.....	Hygiene 461	.....	(2)	.....
Shopwork 421	.....	.....	(4)	.....	.....	.....	.....

Two-Year Courses.

First Year.		Second Year.			
Agriculture and Horticulture.		Agriculture.		Horticulture.	
TERM I.					
Farm Arithmetic 400.	3	Farm Literature 224..	(2)	Farm Literature 224.	(2)
English 223.....	5	Composition 225.....	1	Composition 225.....	1
Farm Literature 224..	(2)	Crop Production 25....	3(4)	Farm Management 29	2(2)
Soils 22.....	2(4)	Farm Management 29	2(2)	Stock Judging 46.....	(4)
Breeds and Scoring 41	1(4)	Principles of Breeding 44.....	3	Commercial Pomology 264.....	2(2)
Pomology 261,.....	2(4)	Animal Nutrition 45..	2	Vegetable Growing 282.....	2(4)
Home Grounds 300....	2(2)	Stock Judging 46.....	(4)	Vegetable Culture 284	2
Seeds and Weeds 62..	(4)	Commercial Pomology 264.....	2(2)	Greenhouse Man. 302.	2(2)
.....	.....	VegetableGrowing 282	2	Greenhouse Cons. 305	2(2)
.....	.....	Farm Chemistry 80...	2(2)	Farm Chemistry 80 ..	2(2)
TERM II.					
English 223.....	(2)	Farm Literature 224..	(2)	Farm Literature 238.	(2)
Farm Literature 224..	5	Composition 225.....	1	Composition 225.....	1
Soils 22.....	2(4)	Business Law 142.....	3	Business Law 142....	3
Farm Buildings 42....	(4)	Fertilizers 23.....	2(4)	Fertilizers 23.....	2(4)
Poultry 49.....	2	Grain Judging 28.....	2(4)	Stock Feeding 48....	(4)
Pomology 262.....	2(4)	Animal Nutrition 45..	2	Animal Diseases 483.	2(4)
Vegetable Gardening 280.....	1(4)	Stock Feeding 48.....	(4)	Nut Culture 271.....	2
Mechanical Drawing 424.....	(4)	Animal Diseases 483..	2(4)	Vegetable Growing 282.....	(4)
Farm Woodwork 426.	(4)	Farm Chemistry 80...	2(2)	Spraying 250.....	2(2)
		Dairy Bacteriology 102	(2)	Farm Chemistry 80..	2(2)
		.....	.....		
TERM III.					
Farm Accounts 401...	(4)	Farm Literature 224..	1	Farm Literature 224.	1
English 223.....	5	Composition 225.....	(2)	Composition 225.....	(2)
Farm Literature 224..	(2)	Crop Production 25...	2(2)	Market Gardening 285	(4)
Farm Crops & Drainage 24.....	2(4)	Dairying 47.....	2(4)	Floriculture 304.....	2(4)
Farm Machinery 26...	2(4)	Market Gardening 285	(4)	Plant Materials 306..	2(2)
Practical Small Fruit Culture 265.....	2(2)	Farm Forestry 320....	2(4)	Farm Forestry 320...	2(4)
Farm Botany 64.....	2(4)	Plant Diseases 71.....	2(2)	Plant Diseases 71...	2(2)
Farm Zoology 249.....	2	Insect Pests 251.....	2(4)	Insect Pests 251.....	2(4)
		Farm Chemistry 80...	2(2)	Farm Chemistry 80..	2(2)
		.....	.....	.....	.....

GENERAL INFORMATION.

REQUIREMENTS FOR ADMISSION TO THE COLLEGE.

A candidate for admission to the College must present, together with his Scholastic Record, a certificate of good moral character; and if the candidate be from another school or college, the certificate must show that he left such institution in good standing.

METHOD OF ADMISSION.

There are two methods of gaining admission to the Freshman Class:

(1.) *By Certificate.*—The College will accept certificates from approved high schools of Maryland and the District of Columbia, and from accredited academies and preparatory schools of this State and of other States.

The certificates presented by the candidate must be officially certified by the principal of the school attended. It must state in detail the work completed by the candidate and, if the candidate be from a Maryland high school, the certificate should state that the candidate has completed, at least, the tenth year of the course of study as outlined for Maryland schools by the State Board of Education.

All admissions by certificate are regarded as merely provisional. That is, while a student presenting a proper certificate is admitted to such standing as it shows him entitled to, he may be required to take a special examination or to do special work in any subject in which his preparation proves to be unsatisfactory; or if, after a fair trial, he fails to maintain a standing in the class to which he was admitted, he may be dropped to a lower class.

Blank certificates conveniently arranged for the desired data, will be sent upon application.

(2.) *By Examination.*—Candidates not admitted by certificate will be required to stand written examinations upon the entrance subjects. These examinations will be held for 1914 on June 10th and 11th, and September 15th and 16th.

Requirements for admission to the Freshman Class for the session of 1914-15 will be as follows:

Number of Units Required.—For the present, thirteen (13) units are required for entrance. This is equivalent to the completion of, at least, the tenth grade of the course of study as outlined for Maryland schools by the State Board of Education. A unit designates not less than four or five "periods" of classroom work or eight or ten "periods" of laboratory work per week, continued throughout the school year, each "period" being not less than forty minutes.

DISTRIBUTION OF THE REQUIRED UNITS.

Of the thirteen (13) units required for admission to the Freshman Class, eleven and one-half (11½) are specified as follows:

Group I	English	3	units	5½ required
	Mathematics: Algebra	1½	"	
	Mathematics: Plane Geometry	1	"	
Group II	American History and Civics	1	"	2 required
	English History	1	"	
	Ancient History	1	"	
	General History	1	"	
Group III	Latin	1 or 2	"	2 required
	German	1 or 2	"	
	French	1 or 2	"	
Group IV	Physics	1	"	2 required
	Chemistry	1	"	
	Botany	½	"	
	Physical Geography	½	"	
	Zoology	½	"	
	Physiology	½	"	
Group V	Shop Work	½	"	0 required
	Drawing	½	"	
	Special Agricultural Subjects	½	"	

The additional one and one-half (1½) units may be offered from Groups II, III, IV or V.

Deficiencies.—A deficiency of two units will be allowed a candidate as conditions, but such conditions must be removed by the end of the Scholastic Year in which the candidate is admitted.

SUGGESTIONS FOR PREPARATION IN THE REQUIRED SUBJECTS GROUP I.

ENGLISH.—Preparation in English has two main objects: (1), command of correct and clear English, spoken and written; (2), power to read with intelligence and appreciation.

To secure the first end, training in grammar and the simple principles of rhetoric and the writing of frequent compositions are essential. The candidate must be able to spell, capitalize and punctuate correctly. He must show a practical knowledge of the essentials of English grammar, including ordinary grammatical terminology, inflection, syntax, the use of phrases and clauses; a thorough training in the construction of the sentence; and familiarity with the simpler principles of paragraph division and structure.

To secure the second end the candidate is required to read the works named below under A and B. The list is intended to give the candidate the opportunity of reading, under intelligent direction, a number of important pieces of literature.

ENGLISH A. For reading and practice. (One and one-half units.) The candidate should read the works prescribed below with a view to understanding and enjoying them. He will be expected to show a reasonable degree of familiarity with their substance. The form of examination will usually be the writing of a paragraph or two on each of several topics, to be chosen by the candidate from a considerable number set before him in the examination paper.

FOR STUDENTS ENTERING IN 1914:

Shakespeare's "As You Like It" and "Julius Caesar"; Addison's "Sir Roger de Coverley Papers"; Scott's "Ivanhoe"; Goldsmith's "Vicar of Wakefield"; Irving's "Sketch Book"; Macaulay's "Lays of Ancient Rome"; Longfellow's "Evangeline"; Lowell's "Vision of Sir Launfal"; Poe's "Raven"; Eliot's "Silas Marner"; Gray's "Elegy Written in a Country Churchyard."

ENGLISH B. For study and practice. (One and one-half units.) The candidate should read the books presented below with

the view of acquiring such knowledge of their contents as will enable him to answer specific questions with accuracy and some detail. The examination is not designed, however, to require minute drill in difficulties of verbal expression, unimportant allusions and technical details.

FOR STUDENTS ENTERING IN 1914:

Shakespeare's "Macbeth"; Milton's "L'Allegro," "Il Penseroso," and "Comus"; Macaulay's Essay on Johnson or Carlyle's Essay on Burns; Washington's Farewell Address and Webster's First Bunker Hill Oration or Burke's Speech of Conciliation with America.

ALGEBRA TO QUADRATICS. (One unit.) As treated in the algebras of Wells, Wentworth, Tanner, Fine, or an equivalent. The four fundamental operations; factoring; highest common factor and least common multiple; fractions (including their conception as ratios) and complex fractions; powers and roots; the solution of linear equations, both numerical and literal, and of problems depending on linear equations; radicals and the theory of exponents; and the solution of simple second degree equations in one unknown quantity by factoring.

ALGEBRA FROM QUADRATICS. (One-half unit.) As treated in the algebras of Wells, Wentworth, Tanner, Fine, or an equivalent. Equations with one or more unknown quantities, to be solved by the methods of linear or quadratic equations; ratio, proportion and variation; variables and limits; properties of series, including the binomial theorem for positive integral exponents, and the formulas for the nth term and sum of the terms of arithmetical and geometrical progressions with applications; logarithms.

PLANE GEOMETRY. (One unit.) As treated by Wentworth, McMahon, Phillips and Fisher, or an equivalent. The usual theorems and constructions, including the general properties of plane rectilinear figures, the circle and measurement of angles, similar polygons, areas, regular polygons and the measurement of the circle; the solution of original exercises, including loci problems; and the application to the mensuration of lines and plane surfaces. The student should be able to prove every statement made, going back step by step until it rests upon primary definitions or axioms.

GROUP II.

American History. (One unit.) Channing's Student's History of the United States, McLaughlin's History of the American Nation, Hart's Essentials in American History, or an equivlent. The discovery, exploration and settlement of America; the colonial policy of England, culminating in the Revolution; the political, economic and social history of the United States since the adoption of the Constitution.

Ancient History to 300 A. D. (One unit.) If a single text book is used, it should be West's Ancient World, Wolfson's Essentials in Ancient History, Morey's Outlines of Ancient History, or an equivalent.

English History. (One unit.) Cheyney's A Short History of England, Andrew's History of England, Walker's Essentials in English History, Montgomery's English History, or an equivalent.

General History. (One unit.) Myer's, Fischer's or Colby's General History, or an equivalent.

The entrance examinations in History will be so framed as to require comparison and the use of the judgment, rather than the mere use of the memory.

GROUP III.

Elementary French. First Year. (One unit.) Aldrich and Foster's Foundations of French and French Reader, or their equivalents.

Second Year. (One unit.) Reading of four to five hundred pages of graduated texts.

Elementary German. First Year. (One unit.) Bacon's German Grammar, or an equivalent.

Second Year. (One unit.) Reading of about 300 pages of graduated texts.

Latin. First Year. (One unit.) First Latin Book completed.

Second Year. (One unit.) Three Books of Caesar, or an equivalent.

Forms and constructions needed in texts from Standard Latin Grammar. Prose based on texts.

GROUP IV.

PHYSICS. (One unit.) As much as is contained in the text-book of Carhart and Chute, Hall and Bergen, Gage's Elements of Physics, Avery's Elements of Natural Philosophy, or an equivalent.

BOTANY. (One unit.) As much as is contained in Gray's Lessons, Bailey's Elementary Botany, Bergen's Foundations, or an equivalent.

CHEMISTRY. (One unit.) Preparation should include the study of at least one standard text-book, to the end that the pupil may gain a comprehensive and connected view of the most important facts of elementary chemistry. The subjects should be attempted only in schools which possess an adequate equipment; laboratory work is essential and original notes must be submitted; more importance will attach to descriptive chemistry than to analytical, and the student should become as familiar as possible with the commonest non-metals and metals, as well as their simpler compounds.

PHYSICAL GEOGRAPHY. (One-half unit.) A study of the earth, atmosphere, waters and attendant phenomena; the distribution of both animal and vegetable life, and the various industries resulting from the development of the natural resources of the earth.

Text-books on Physical Geography by Gilbert, Davis, Fairbanks, Tarr, or an equivalent.

PHYSIOLOGY. (One-half unit.) The preparation should include the general facts of the anatomy, histology and physiology of the human body and the essentials of hygiene. A text-book, such as the first part of Hough and Sedgwick's The Human Mechanism, or an equivalent should be used in connection with charts and models.

ZOOLOGY. (One-half unit.) The preparation in Zoology should include a general knowledge of common animals of the locality with regard to their ecological relations; the general study of the animal forms such as the Amoeba, a ciliate, an earth worm, insect, frog and mammal. He should have some work in the general physiology of these types and a comparison of life processes in animals and plants. The student should have such general knowledge of the animal kingdom, the characteristics of the Phyla and principal classes of animals as is given in Davison's Practical Zoology.

GROUP V.

SHOPWORK. (One-half unit.) A candidate who offers shopwork as an entrance subject is asked to present a detailed statement from his instructor, setting forth the kind and amount of work done.

DRAWING. (One-half unit.) Candidate must present a detailed statement from his instructor showing the kind and amount of work done and submit drawings done by himself.

SPECIAL AGRICULTURAL SUBJECTS. (One-half unit.) This class includes nature studies and other allied subjects not specifically designated in Group IV.

FOR ADVANCED STANDING. Applicants for advanced standing in any course, in addition to satisfying the requirements for admission to the Freshman Class, must pass an examination in the studies which have been pursued by the class for which they are candidates. Work done elsewhere is accepted when properly certified and found on examination to be equivalent in extent and quality to that required at this College.

EXAMINATIONS FOR ADMISSION TO ANY HIGHER CLASS will be held at the College in June and September at the same times as examinations for admission to the Freshman Class.

CANDIDATES FOR THE SUB-FRESHMAN CLASS will be required to present certificates or to pass examinations covering the work outlined for the Preparatory Class, or an equivalent.

FOR ENTRANCE TO THE PREPARATORY CLASS the requirements are: English grammar, arithmetic, United States history and geography.

Students from newly acquired territory or any foreign country must have a local guardian appointed with parental powers, with whom the President can deal in any case of emergency. Students who cannot speak English are not desired, and are advised that satisfactory progress at this College on their part cannot be achieved until they have familiarized themselves partly, at least, with the English language.

EXAMINATIONS AND PROMOTIONS.

In order to pass from one class to the next higher a student i required to pass an examination in each study pursued, by a marl of at least sixty per cent., and to have a combined mark in eacl branch (daily and examination) of at least seventy per cent.

A student will not be promoted if it is manifest that he canno pursue successfully the advanced work.

REPORTS.

Detailed reports are sent to parents and guardians at the end of every quarter. These give the grade of the student in every branch of study, his attendance record and his conduct record with comment by the President upon each item.

In addition to this, monthly reports are issued for October, November, January, February and April. These give general information as to scholarship, conduct, attendance and health, and call attention to deficiency in any one of these particulars.

GRADUATION AND DEGREES.

Degrees are granted by the Board of Trustees upon the recommendation of the Faculty.

All applications for degrees must be approved by the Faculty.

BACHELOR OF SCIENCE.

As a requisite for graduation the candidate for this degree must have completed the work previously outlined, including a thesis.

The subject for this thesis must be approved prior to Februarv 1st, by the head of the department in which the investigation is to be pursued, and the thesis must be submitted not later than May 15th.

MASTER OF SCIENCE.

The degree of Master of Science may be conferred as follows:

1. Upon persons who have taken the degree of Bachelor of Science in a recognized institution, and have pursued successfully at this College for one year a course of graduate study, satisfying the following requirements:

The course shall consist of a major subject and two minor subjects germane to the major subject and shall be approved by the professor in charge of the major subject.

At least one minor subject shall be in a different department from the major subject.

The course shall occupy not less than fifteen credit periods per term.

Not fewer than five credit periods per term shall be devoted to the minor subjects.

A thesis satisfactory to the professor in charge of the major subject shall be presented.

2. Upon college graduates of not less than two years' standing, who are employed in any of the departments of the College, including the Experiment Station, and who have completed the equivalent of the above course of study. Candidates under this clause must have their applications approved at least eighteen months before they contemplate receiving their degree.

3. Upon graduates of this College of not less than three years' standing, who having been connected with institutions of learning or research, where adequate facilities for advanced work are available, have completed a course equivalent to (1) and have presented a satisfactory thesis.

MECHANICAL ENGINEER.

The degree of Mechanical Engineer (M. E.) may be conferred as follows:

1. Upon graduates of this College of not less than three years' standing, who having been connected with institutions of learning or research, where adequate facilities for advanced work are available, have completed a course consisting of a major and two minor

subjects, and presented a satisfactory thesis. The course of study shall be outlined by the heads of the Departments of Civil, Electrical and Mechanical Engineering.

2. Upon graduates of this College who have had three years' professional experience of an acceptable character. Such candidates must present a full report of such experience and such other information as to the qualifications for the degree as may be found desirable, and in addition shall present a satisfactory thesis.

3. All candidates must be at least Junior members of the American Society of Mechanical Engineers. All applications for degrees must be approved twelve months prior to the date they contemplate receiving the degree, and the thesis must be presented at least one month prior to such date.

CIVIL ENGINEER.

The degree of Civil Engineer may be conferred upon any candidate who is a graduate of this College with the degree of Bachelor of Science in Civil Engineering, and has been engaged in engineering pursuits for not less than three years since graduation, provided:

1. That he shall be at least a Junior member of the American Society of Civil Engineers.

2. That he shall accompany his application with a synopsis of the work upon which he bases his request.

3. That the Committee composed of the heads of the Civil, Electrical and Mechanical Engineering Departments, to whom his application shall be referred, shall consider him eligible.

4. That previous to receiving the degree he shall comply with such further conditions as the aforesaid committee shall impose.

SCHOLARSHIPS.

High-School Scholarships.—To encourage *worthy young men* who desire a Collegiate Education, the Board of Trustees has established for each High School in Maryland and the District of Colum-

bia, one scholarship *each year,** to be awarded under the following conditions:

1.—The person awarded a scholarship must be a graduate of a high school and qualified to enter the Freshman Class (See Entrance Requirements, page 117), and must be of approved moral character and at least 15 years of age.

2.—The appointment to a scholarship shall be made by the School Superintendent, upon the recommendation and certification of the Principal of the High School.

The Principal of the High School may recommend one or more persons for appointment, with information as to the merits of each case. In making appointments, not only class standing, but inability to meet the financial expenses of an education should be given consideration.

3.—The appointment shall be made for the term normally required to complete the course selected.

4.—Each scholarship has the value of $50.00 per year. This amount will be credited on the holder's account.

5.—The scholarship will be forfeited by persistent indifference to scholastic work or by repeated disregard of the rules of discipline of the College.

6.—The scholarship will be forfeited in case the holder fails of promotion at the end of any scholastic year, unless there are extenuating circumstances.

County Scholarships.—Counties which do not have a high school will be given one $50.00 scholarship each year, and the recipient may enter the Sub-Freshman class (See Entrance Requirements, page 123). The appointment to the scholarship is made by the County Superintendent after a competitive examination. In other respects the regulations governing this scholarship are the same as for the high-school scholarships.

Industrial Scholarships. For the encouragement of *worthy young men* of limited means towards getting a College education, a limited number of industrial scholarships have been established by the Board of Trustees to be awarded under the following conditions:

*This plan will be gradually put into effect as the present scholarships become vacant.

1.—The number of scholarships will depend upon the amount of service required.

2.—The value of the scholarship will be graduated according to the amount and character of the work performed, and will range from $40.00 per year upwards. The amount earned will be credited on the holder's account.

3.—The holder of such a scholarship will be required to render to the College certain specified services, such as work in the dining-room, on the corridors, in the library, etc.

4.—Such services will not as a rule prevent the holder from participating in military drill.

5.—Vacancies as they occur shall be filled by the President of the College and ratified by the Executive Committee of the Board of Trustees.

6.—The holder of an industrial scholarship: (a)—must be more than 15 years of age and of normal size, health and strength; (b)—must be of approved moral character as attested by some well-known resident of his locality; (c)—must be qualified to enter the Freshman Class of the College (See Entrance Requirements, page 117).

7.—The appointment shall be made for a term of four years.

8.—The scholarship will be forfeited by persistent indifference to scholastic work or by repeated disregard of the rules of discipline of the College.

9.—The scholarship will be forfeited in case the holder fails of promotion at the end of any scholastic year, unless there are extenuating circumstances.

10.—The scholarship will be forfeited in case the services required of the holder are not satisfactory to those in charge of the work.

FACILITIES FOR RELIGIOUS WORSHIP.

The College is undenominational in character. The daily exercises of the College include religious worship in the College Chapel. Students are encouraged to attend the church of their choice or

Sunday mornings. There is an Episcopal church at College Park; and at Berwyn, one mile north, and at Riverdale, one mile south, are Presbyterian churches. In Hyattsville, two miles south, may be found Catholic, Episcopal, Presbyterian, Baptist and Methodist churches. In the city of Washington are churches of all denominations, and students may attend service in this city on Sunday mornings. Parents are urged to insist upon their sons attending the church of the faith of their parents.

COLLEGE REGULATIONS.

The attention of parents is earnestly called to the following rules in force at this College: The College authorities can succeed in conferring the maximum amount of training upon the student only with and by the active support and earnest co-operation of the parent. The President of the College is always ready and willing to discuss with parent or guardian any failures in a student's record, and correspondence on this subject is always appreciated.

No student will be accepted as a matriculate until the contract card containing the following agreement for matriculation is signed by parent or guardian, and received by the President of the College.

It is understood that the President of the College as the executive of the same, and acting for the Board of Trustees, a party to this contract, *has the right to ask the withdrawal of a student at any time, when in his judgment such withdrawal may be necessary either for the interest of the young man or the institution which he attends. It is further understood that a parent or guardian can at any time withdraw his son or ward, subject to regulations herein set forth.*

A student manifesting indifference to the observance of the rules and regulations of the institution, or wanting in proper attention to the preparation of his work, will be cautioned to improve. Failing to do so his parents, upon notice given by the President, must withdraw their son.

A special pledge to refrain from what is popularly known as *"hazing,"* and taking unfair means in examinations is required o every applicant for entrance, before he will be allowed to matricu late. Parents should impress upon their sons that failure to liv up to this pledge is a dishonor which unfits them to be longer stu dents of the College. *"Hazing" is invariably punished by instan dismissal.*

Frequent absences from the College are invariably of great dis advantage to the student, in breaking in upon the continuity of hi work and in distracting his mind from the main purpose of his at tendance at the institution. Parents are therefore earnestly aske to refrain from granting frequent requests to leave the College.

Students will not be permitted to leave classes to answer telephon calls, unless they are urgent.

Students will not be permitted to make contracts or to sell an article to their associates without the approval of the President.

The College will not be responsible for articles left in the dormi tories during vacation, nor for valuables left by students in thei rooms at any time. They should be deposited with the Colleg Treasurer, who will place them in the College safe and give a re ceipt therefor.

RULES ON COLLEGIATE ROUTINE, ENDORSED BY THE FACULTY.

1. A student may not change his course of study unless at the written re quest of his parent or guardian, and after said request has been endorsed b the head of the course abandoned, and the head of the course requested, an approved by the Committee on Courses.

2. Examinations to make up conditions acquired in any term will be give only on the mornings and afternoons of certain Saturdays in the following ter set apart for this purpose, and at such dates as shall be provided for entranc examinations at the beginning of the scholastic year. On these dates student having conditions will be expected to take the examinations as scheduled an will be permitted to do so without the payment of a fee. Should, for any reaso an examination be requested at any other time, a charge of $1.00 will be mad for each subject on which the applicant is examined, provided that all such sp cial examinations shall be authorized by the faculty.

3. To attain proficiency a student must make an examination grade of 6 per cent.; also a term average of 70 per cent. In case of failure, upon re-ex amination a grade of 70 per cent. is required.

4. A credit period is one theoretical or two practical periods per week fo one term.

5. A student may not be promoted if conditioned in more than one-fifth o the credit periods required for one year's work, provided that no student ma be promoted with more than one condition in any one department.

6. A student may not be promoted if he has any conditions of more than a year outstanding.

7. Any student who uses unfair means in examination will: (1) receive no further examination in same subject; (2) receive zero for examination grade; (3) receive no commission; (4) receive no diploma.

8. A student is subject to an oral examination at any time within ten days after written examination.

9. An examination paper, containing erasures or showing alterations, may be rejected at the discretion of the Professor in charge, and a new examination ordered.

10. In computing term averages the daily grade is computed at 2, and the examination grade at 1.

11. The yearly averages in all studies is computed by giving each subject a weight according to the mean number of periods per week involved; theoretical periods being given a value of 2, practical periods 1.

12. Senior students must submit subjects for graduating theses prior to February 1st, and all theses for graduation must be completed prior to May 15th.

13. No special courses are permitted save by consent of the Committee on Courses. In case consent is granted for a special course, the certificate awarded attesting work will not have the College seal nor the Governor's signature.

14. No student may take work in more than one class during any one term.

EXPENSES.

FEES.—No tuition fee is required. The following are the only fixed charges payable by each student:

	Boarding Students.	Day Students.
Incidentals.—A part payment towards janitor service, heating and lighting recitation and public rooms, laboratories and library, medical attention, etc.	$30.00	$30.00
Physical Culture, Gymnasium and Athletics	10.00	10.00
Book Rental	10.00	10.00
Room and furniture rent	35.00	....
Laundry	15.00	....
Board (in College dining hall), $4.00 per week or for College year, 36 weeks	140.00	....
	$240.00	$50.00
Uniforms: Winter	16.00	16.00
Uniforms: Summer	10.00	10.00
	$266.00	$76.00

Damage or Caution Money.—A deposit of $3.00 is required o all students at time of entrance as a guarantee against damage t property. Unused damage money is returned to the student a the end of the year.

Laboratory Fees.—A charge is made each student taking a labor atory course for outfit, material consumed and apparatus destroyed The charge varies according to the subject.

A deposit in advance is required to meet the usual expenses. I case less is consumed the excess will be returned. In case mor is consumed than covered by the deposit, the student will be require to pay the excess. The laboratory deposit shall be made previou to taking up work in the respective laboratories. The fees charge in the different laboratories are as follows:

		Per Term.
Chemistry:	Freshman and Sophomore	$3.0
	Junior and Senior	5.0
Physics		.7
Electrical Engineering:	Sophomore	.7
	Junior and Senior	1.0
Mechanical Engineering		1.0
Civil Engineering, Junior and Senior		1.0
Botany and Plant Physiology		2.5
Entomology and Zoology		3.0
Bacteriology		2.0
Veterinary		.5
Agronomy		2.0
Animal Husbandry		2.0
Horticulture		2.0

Students entering College after November 1st, or withdrawin prior to the close of the scholastic year, will be charged for th time they are in attendance, as follows:

Boarding students at the rate of $30.00 per month.

Day students at the rate of $6.00 per month.

Students withdrawing more than two weeks after entrance wi be charged for at least one month's attendance.

Students withdrawing less than two weeks after entrance, wi be charged at the rate of $2.00 per day.

Table board for students not rooming at the College will be $4.00 per week, or 25 cents per meal.

Day students may get lunch at noon at the lunch counter at nominal prices.

Charges against students are continued until formal withdrawal has been made.

No student will be promoted to another class, and no diploma will be conferred upon, nor any certificate issued to a student who is in arrears in his account with the College.

Students failing to pay the quarterly charges within 30 days from time due, will be required to withdraw until settlement is made, and a charge of 2 per cent. per month penalty will be made.

TIME OF PAYMENT.—For boarding students, $60.00 on entrance, $60.00 November 15th, $60.00 February 1st, $60.00 April 1st.

For day students, $12.50 on entrance, $12.50 November 15th, $12.50 February 1st, $12.50 April 1st.

Students will be required to pay a fee of 25 cents per piece for transportation of baggage to and from station.

In cases of illness, requiring a special nurse and medical attention, the expense must be borne by the student.

Students will be admitted free of cost to membership in College Athletic Association.

All College property in the possession of the individual student, such as his room, furniture, books, apparatus and military equipment, will be charged against him, and the parent or guardian must assume responsibility for its return without abuse to the proper department at the end of each scholastic year, at which time the account will be cancelled. If abused, the cost of replacing or repairing the abused article must be paid by the parent or guardian.

Damage to College property in public places in the building and on the grounds by the student will be charged to the whole student body, pro rata, unless the offender is known. In such cases, the whole expense of repairing or replacing the damaged property will be charged to the parent or guardian of the offending party. The matriculation of a student is evidence of the acceptance of this regulation.

UNIFORM.—The uniform is the same as worn at the United

States Military Academy at West Point. It is made of the best Charlottesville gray cloth, under a special contract with one of the best military equipment houses in the United States. This uniform is furnished at a very low price.

The uniform consists of gray fatigue blouse, gray fatigue trousers and gray fatigue cap, with white waist belt and white cross belt for all military formations. The uniform and equipment cost:

Fatigue blouse	$8.00
Fatigue trousers	5.10
Fatigue cap	1.60
White waist belt and plate	.50
White cross belt and equipment	.50
Total	$16.00

Measures for this uniform are taken as soon as the student arrives at College and fit is guaranteed.

A deposit of at least 25 per cent. for this uniform must be made with the Treasurer when the measure is taken, as no uniform will be ordered until the money has been deposited for the same. The uniform must be paid for in full before it is delivered. No uniform is paid for until it is approved by the Commandant of Cadets.

In summer the field service uniform is worn, consisting of drab blouse, shirt and trousers, canvas leggins, regulation campaign hat, tan leather waist belt and black tie.

The cost of the summer outfit is:

1 olive drab blouse	2.50
1 campaign hat	1.00
1 pair canvas leggins	.80
1 harness leather belt	.50
1 black four-in-hand tie	.20
1 pair of white duck trousers	1.50
1 pair olive drab breeches	2.00
1 olive drab blouse	2.50
Total for summer uniform	$10.00

Deposits for the summer uniform must be made immediately after the first of January.

White gloves, collars, etc., may be purchased at the stores near the College or from the contractor furnishing the uniforms.

The uniforms will last more than one year if given careful usage.

ARTICLES NECESSARY TO BE PROVIDED.—All students are required to provide themselves with the following articles, to be brought from home or purchased from the College Park stores on arrival:

1 dozen white standing collars.
6 pairs white gloves (uniform).
6 pairs white cuffs.
1 pair blankets (for single bed).
2 pairs sheets (for single bed).
4 pillow cases.
1 chair (uniform).
6 towels.
8 table napkins.
1 pillow.
1 mattress (uniform).
2 clothes bags (uniform).
1 broom.

All the articles marked (uniform) in the foregoing list can best be purchased after the student arrives at the College. The cost of the entire list should not be more than $15.00 for the year.

ACKNOWLEDGMENTS.

MEDALS.—The authorities of the Institution take this opportunity to express their appreciation of the courtesy of their friends in establishing the following, for competition:

William Pinkney Whyte Medal, for excellence in Oratory, offered by Hon. Isaac Lobe Straus, of Baltimore, Md.

Winfield Scott Schley prize, for excellence in Oratory, offered by B. H. Warner, Esq., of Kensington, Md.

James Douglas Goddard Memorial Medal, to student of Prince George's county making the highest average in studies, offered by his sister, Mrs. Annie K. Goddard James, of Washington, D. C.

STUDENT ORGANIZATIONS.

Students' clubs for religious, social, literary and athletic purposes are encouraged as a means of creating class and college pride, and developing an *esprit de corps* among the students. Each class has its own organization, in which matters relating to the class are discussed and directed. Officers are elected and the unity of the class preserved. This has been found to be a decided aid to discipline and tends to raise the standard of student honor.

YOUNG MEN'S CHRISTIAN ASSOCIATION.

Much encouraging work has been done by this organization during the past year, and gratifying interest has been shown in the meetings.

OFFICERS.

President, E. P. Williams.
Vice-President, W. E. Harrison.
Recorder, S. E. Day.
Treasurer, P. N. Peter.

LITERARY SOCIETIES.

MORRILL SOCIETY.

President, R. C. Williams.
Secretary, C. T. Cockey.

NEW MERCER SOCIETY.

President, H. S. Ford.
Secretary, P. N. Peter.

These societies are invaluable adjuncts to college work. Through them a knowledge of parliamentary law is gained, as well as a readiness of expression and activity in thought, qualities particularly valuable to the American citizen.

The literary society work is under the general supervision of the Professor of Public Speaking, who is always ready to advise with the members in matters of parliamentary law and train them in the delivery of their orations and debates.

ENGINEERING SOCIETY.

One of the newest and most beneficial additions to the M. A. C. is the Engineering Society. Organized in September, 1912, it proved an immediate success, gratifying a long-felt and much-needed want on the part of the engineering students. The general object of the Society is the cultivation of a more active interest in engineering work, while its special aim is to give the student the opportunity to discuss the line of work in which he is interested and to become more accustomed to presenting his ideas. Inasmuch as the Society takes in all members of the Senior and Junior Classes in the Civil, Electrical and Mechanical Engineering Courses, a larger opportunity for acquiring technical knowledge outside of one's own course is offered.

The Society meets twice a month on alternate Thursdays. Papers are presented at alternate meetings by Engineers in practice and by the students themselves.

OFFICERS.

President, E. P. Williams.
Vice-President, F. W. Wright.
Secretary, F. J. McKenna.
Treasurer, F. S. Hoffecker.

THE LIEBIG CHEMICAL SOCIETY.

The Liebig Chemical Society was organized to satisfy a much-felt need. The object of the Society is to have the various chemical problems of the day, discussed by men who have specialized in the different branches of Chemistry, or by the members themselves. This tends to develop a keener interest in Chemistry, and also to broaden the student along Chemical lines.

Membership in this Society is open to all members of the Sophomore, Junior and Senior Classes, who are specializing in Chemistry.

OFFICERS.

President, R. C. Williams.
Vice-President, H. A. Rasmussen.
Secretary-Treasurer, P. N. Peter.

AGRICULTURAL CLUB.

President, D. L. Johnson.
Vice-President, J. E. Shillinger.
Secretary-Treasurer, J. H. Knode.
Sergeant-at-Arms, S. E. Day.

ROSSBOURG CLUB.

The social man is a necessity—hence this organization is encouraged and supported by the President and Faculty. The entertainments have been marked by a spirit which emphasizes the wisdom of its organization and justifies its encouragement.

OFFICERS.

President, R. V. Truitt.
Vice-President, W. T. Fletcher.
Secretary, D. L. Johnson.
Treasurer, R. T. Gray.
Assistant Treasurer, C. T. Cockey.

REVEILLE.

The "Reveille" is the College annual, edited entirely by the Senior Class. Sixteen editions of the "Reveille" have appeared, and each has been characterized by a gratifying improvement in the standard both of originality and expression.

EDITORIAL STAFF.

Editor-in-Chief, J. B. Gray, Jr.
Associate Editors, H. U. Deeley, D. L. Johnson, H. A. Rasmussen.
Business Manager, H. S. Ford.
Assistant Business Managers, L. R. Rogers, J. W. Green.
Treasurer, E. P. Williams.

DEPARTMENT EDITORS.

Art, F. H. O'Neill.
Athletics, R. C. Williams.
Humor, R. V. Truitt, J. B. Coster.
Society, W. T. Fletcher.

THE TRIANGLE.

The "Triangle" is the College newspaper, and is published every two weeks during the scholastic year.

EDITORIAL STAFF.

Editor-in-Chief, J. W. Green.
Athletic Editor, R. S. Brown.
Local Editor, C. T. Cockey.
Associate Local Editor, W. E. Hall.
Agricultural Editor, K. E. Smith.
Freshman Editor, A. C. Medinger.
Alumni Editor, R. Brigham.
Business Manager, E. W. Montell.
Associate Business managers, F. J. McKenna, C. H. Buchwald.

STUDENT ATHLETIC ASSOCIATION.

Membership in the Athletic Association is open to all students free of charge.

The object of the Association is to foster athletic spirit, prevent indiscretion in athletic matters and co-operate with the Athletic Council in the general management of all athletic affairs.

OFFICERS.

President, R. C. Williams.
Secretary, E. W. Montell.

ATHLETIC COUNCIL.

The Athletic Council, in conjunction with the Student Athletic Association, manages all athletic affairs It consists of five members of the Faculty, appointed by the President, and five students, namely, the managers of the football, baseball, track and tennis teams, and the President of the Athletic Association.

THE ORATORICAL ASSOCIATION OF MARYLAND COLLEGES.

The Maryland Agricultural College is a member of this Association, which is composed of St. John's College, Washington College, Western Maryland College and Maryland Agricultural College. Contests are held annually at these colleges in rotation, and a marked improvement is to be observed as a result of its organization.

THE ALUMNI ASSOCIATION.

An Institution can largely be judged by the character of its Alumni. Their success in life is the Institution's pride. The work of the Alumni of a College is its greatest asset. M. A. C. is fortunate in having among its Alumni, men who have attained notable achievements in Agriculture, Engineering and Science. M. A. C. Alumni can be found holding prominent positions in all walks of life.

While for many years the Alumni, through their Association, have taken an active interest in the growth and development of the Institution, it is pleasing to state that this interest has been greatly

increased during the past two or three years and since the recent great fire at the College, the Association has taken active steps to aid the Board of Trustees and Faculty in the rehabilitation of the College.

One of the cherished hopes of the Association, that of having direct representation on the Board of Trustees, has been attained in the appointment of the President of the Alumni Association, by the Governor of the State, as a Trustee of the College. The attainment of this end will naturally greatly increase the enthusiasm and interest of the members of the Association in co-operating more closely than ever with the College authorities in increasing the scope and usefulness of the Institution.

The Alumni Association continues to offer medals for worthy students in the several collegiate departments, debating societies, etc.

The members have also greatly aided in the development of athletics and especially in conducting the joint athletic meets, which were held at the College during the last three years.

The Alumni also co-operate in the publishing of the Triangle.

The officers of the Alumni Association for the present year are: President, Henry Holzapfel, Jr., '93; Vice-President, Wellstead White, '05; Secretary-Treasurer, C. G. Church, '00; Executive Committee, members at large, J. N. Mackall, '05; F. P. Veitch, '91; Triangle Staff—Alumni Editor, R. Brigham, '08; Business Manager, L. B. Broughton, '08.

Graduates and members of the Association are requested to keep the Secretary-Treasurer, C. G. Church, 403 Sixth street, N. E., Washington, D. C., informed of any change in address. Any information concerning the older graduates which will enable the officers to locate and communicate with them will facilitate their efforts and will tend to further the success of the Association.

DEGREES CONFERRED JUNE 18th, 1913.

Honorary.

DOCTOR OF LAWS.

DAVID J. LEWIS, M. C., FROM MARYLAND.

DOCTOR OF SCIENCE.

FRED. W. BESLEY, (M. A. C., '92), BALTIMORE, MD.
HENRY C. SHERMAN, (M. A. C., '93), NEW YORK CITY.
FLETCHER P. VEITCH (M. A. C., '91), COLLEGE PARK, MD.

CIVIL ENGINEER.

MELVIN C. HAZEN (M. A. C., '88), WASHINGTON, D. C.

ELECTRICAL ENGINEER.

RICHARD C. M. CALVERT (M. A. C., '90), OXFORD, N. C.

In Course.

MASTER OF SCIENCE.

EARNEST NEAL CORY (M. A. C., '09), WASHINGTON, D. C.
WALTER CAMERON REEDER (M. A. C., '08), CECIL COUNTY, MD.
CHAS. SYLVESTER RIDGWAY (M. A. C., '06), BELTSVILLE, MD.
EARNEST RALPH SASSCER (M. A. C., '04), WASHINGTON, D. C.

CIVIL ENGINEER.

HARRY DUGAN WILLIAR, JR. (M. A. C., '07), BALTIMORE, MD.

BACHELOR OF SCIENCE.

AGRICULTURE.

HENRY PECK AMES, COLLEGE PARK, MD.

Thesis: "The Deterrent effect of Lime Water in Retarding the Growth of Mold on Germinating Legume and Grass Seeds."

NATHANIEL A. LE SAVOY, NEW YORK CITY.

Thesis: "The Influence of Breed Upon the Milk and Butter of Cattle."

HUGH S. KOEHLER, BLAIRSVILLE, PENNA.

Thesis: "Investigation of the Angora Goat Industry of Maryland."

IRVING LEWIS TOWERS, CHEVY CHASE, MD.

Thesis: "Some Studies of the Causes of Leg Weakness in Chickens."

HORTICULTURE.

JOHN ROWLAND REICHARD, FAIRPLAY, MD.

Thesis: "Natural versus Artificial Pollination of Tomatoes in the Greenhouse."

BIOLOGY.

WILLIAM HENRY WHITE, COLLEGE PARK, MD.

Thesis: "Fumigation with Hydrocyanic Gas with Special Reference to the Maximum and Minimum Dosage for Numerous Greenhouse Crops."

CHEMISTRY.

ALFRED NISBET, BALTIMORE, MD.

Thesis: "Discussion of Methods of Sugar Analysis."

MERCER BROWN MAYFIELD, JR., WASHINGTON, D. C.

Thesis: "A Study of the Acid Contents of Corn with a View to a New Method of Grading the Same."

WILLIAM KEAN ROBINSON, FRANKTOWN, VA.
Thesis: Recovery of Potash from Feldspar."

GENERAL.

GEORGE BYRON MORSE, JR., RIVERDALE, MD.
Thesis: "Development of International Arbitration in the Past One Hundred Years."

CIVIL ENGINEERING.

LEO BLANKMAN, BALTIMORE, MD.
SAMUEL WOLF BLANKMAN, BALTIMORE, MD.
Thesis: "Design of a 500,000 Gallon Water Tank."

MILTON ERNEST DAVIS, BALTIMORE, MD.
Thesis: "Design of Two Modern Fireproof Buildings Connected by a Concrete Arch Bridge."

WILLIAM B. HULL, WESTMINSTER, MD.
EZEKIEL JOHN MERRICK, JR., SUDLERSVILLE, MD.
Thesis: "Location of a Spur Track from Lakeland to College Buildings."

EDWIN EMERSON POWELL, BALTIMORE, MD.
Thesis: "Construction of Broken Stone Roads."

GEORGE PERCIVAL TRAX, EASTON, MD.
Thesis: "The Determination of a Meridian by Various Methods."

ELECTRICAL ENGINEERING.

RALPH SCOTT HEALY, NEW YORK CITY.
Thesis: "Efficiency and Life Tests on Carbon, Tantalum and Tungsten Lamps."

MECHANICAL ENGINEERING.

CHARLES M'ELROY WHITE, LONACONING, MD.
Thesis: "Some Engineering Data."

CERTIFICATES IN TWO-YEAR COURSES.

AGRICULTURE.

Emory Wilhide Benson, Cockeysville, Md.
Gladen Davis, Rocks, Md.
Harry S. Dearstyne, Hawthorne, Conn.
Albert Earl Irving, Baltimore, Md.
James Phillip Hanson Mason, Accotink, Va.
Henry Whitmore White, Dickerson, Md.

HORTICULTURE.

Alexander Morris Todd, Fort Howard, Md.
Lea Gilpin Willson, Silver Spring, Md.

Testimonials of Merit Awarded June 18, 1913.

For distinguished achievement in the promotion of the agricultural interests of Maryland:

GEORGE O. BROWN, OF BALTIMORE CITY.
For his efforts in promoting Poultry Breeding.

W. OSCAR COLLIER, OF TALBOT COUNTY.
For his efforts in improving Farm Seeds.

RICHARD VINCENT, JR., OF BALTIMORE COUNTY.
For his efforts in promoting the Floral interests.

Medals and Prizes Awarded June 18, 1913.

For excellence in the Agricultural Course; offered by the Alumni Association:

N. A. LE SAVOY, OF NEW YORK CITY.
Honorable Mention, H. S. KOEHLER, OF PENNSYLVANIA.

For excellence in the Horticultural Course; offered by the College

J. R. REICHARD, OF MARYLAND.

For excellence in the Biological Course; offered by the College:

WM. H. WHITE, OF MARYLAND.

For excellence in the Chemical Course; offered by the College:

MERCER BROWN MAYFIELD, OF WASHINGTON, D. C.

For excellence in the Civil Engineering Course; offered by the College:

M. E. DAVIS, OF BALTIMORE CITY.

For excellence in the Electrical Engineering Course; offered by the College:

R. S. HEALY, OF NEW YORK CITY.

For excellence in the Mechanical Engineering Course; offered by the Alumni Association:

C. M. WHITE OF MARYLAND.

For excellence in Debate; offered by the Alumni Association:

S. W. BLANKMAN, OF BALTIMORE CITY.

The William Pinkney Whyte Medal, for excellence in Oratory; offered by Isaac Lobe Straus, Esq.:

J. B. GRAY, JR., OF MARYLAND.

The Goddard Medal, for excellence in scholarship and moral character; offered by Mrs. Annie K. Goddard James:

H. W. TOWNSHEND, OF MARYLAND.

MILITARY ORGANIZATION.

COMMANDANT OF CADETS.

Major John A. Dapray.....United States Army.

BANDMASTER AND ARMORER.

Charles L. Strohm.....Late Chief Trumpeter, U. S. Cavalry Band.

BATTALION STAFF.

R. C. Williams.....Cadet Major.
J. W. Green.....First Lieutenant and Adjutant.
H. S. Ford.....First Lieutenant and Quartermaster.
Richard Dale.....Sergeant Major.
C. E. Robinson.....Color Sergeant.

CADET BAND ORGANIZATION.

Charles L. Strohm, Bandmaster.

J. W. Green.....Adjutant Commanding.
H. U. Deeley.....Principal Musician.
R. L. Schaefer.....Drum Major.
R. S. Brown.....Sergeant.
C. H. Buchwald.....Sergeant.
W. R. Kelly.....Sergeant.
P. A. Hauver.....Corporal.
E. M. Roberts.....Corporal.
J. T. Sterling.....Corporal.
T. Arnold.....Corporal.

COMPANY OFFICERS AND NON-COMMISSION OFFICERS.

Company "A."	Company "B."	Company "C."
CAPTAINS.		
D. L. Johnson.	R. V. Truitt.	E. P. Williams.
FIRST LIEUTENANTS.		
W. T. Fletcher.	L. R. Rogers.	A. White.
SECOND LIEUTENANTS.		
J. B. Coster.		J. B. Gray.
FIRST SERGEANTS.		
E. W. Montell.	C. T. Cockey.	A. R. Carter.
QUARTERMASTER SERGEANTS.		
P. N. Peter.	F. J. McKenna.	G. S. Frazee.

Company "A."	Company "B."	Company "C."
	SERGEANTS.	
R. J. McCutcheon.	O. G. Carpenter.	J. H. Knode.
C. E. Robinson.	W. E. Hall.	L. R. Pennington.
	F. W. Wright.	
	CORPORALS.	
K. Knode.	E. A. Taylor.	W. J. Aitcheson.
K. E. Smith.	K. Grace.	R. White.
P. Morris.	L. W. Erdman.	A. Reisinger.
E. R. Hindman.	G. B. Gray.	J. H. Sunstone.
W. A. Bowling.	M. Levin.	S. E. Day.
G. V. Maus.	G. B. Sharp.	E. G. Knatz.
W. C. Stanton.		
	FIELD MUSIC.	
H. Smith.	B. Dubel.	H. Freundlich.
H. Naylor.	A. D. Etienne.	J. P. Blundon.
O. Beall.	A. Miller.	S. C. Wallace.

ROSTER OF MATRICULATES.

SESSION 1913-14.

NAME.	POST OFFICE.	COUNTY.
GRADUATE STUDENTS.		
Adams, A. C.,	College Park,	Prince George.
Allison, J. F.,	Philadelphia,	*Pennsylvania.*
Anspon, B. W.,	College Park,	Prince George.
Burrell, L. L.,	College Park,	Prince George.
Dunbar, E. B.,	Springville,	*New York.*
Gardner, C. H.,	Baltimore,	*Baltimore City.*
Gray, S. D.,	Nanjemoy,	Charles.
Hayman, E. T.,	Baltimore.	*Baltimore City.*
Jarrell, T. D.,	College Park,	Prince George.
Linhardt, C. H., Jr.,	Baltimore,	*Baltimore City.*
Lowery, S. L.,	Baltimore,	*Baltimore City.*
Mahoney, W. T.,	Jefferson,	Frederick.
Monroe, J. F.,	College Park,	Prince George.
Remsburg, C. G.,	Knoxville,	Frederick.
SENIOR CLASS.		
Coster, J. B.,	Coster,	Calvert.
Deeley, H. U.,	Baltimore,	*Baltimore City.*
Fletcher, W. T.,	Alexandria,	*Virginia.*
Ford, H. S.,	Fairmount,	Somerset.
Gray, J. B., Jr.,	Prince Frederick,	Calvert.
Gray, R. T.,	Grayton,	Charles.
Green, J. W.,	Westover,	Somerset.
Hoffecker, F. S.,	Wilmington,	*Delaware.*
Johnson, D. L.,	Frederick.	Frederick.
Lodge, C. M.,	McConnellsburg,	*Pennsylvania.*
O'Neill, F. H.,	Riverdale,	Prince George.
Rasmussen, H. A.,	Baltimore,	*Baltimore City.*
Rogers, L. R.,	Baltimore,	*Baltimore City.*
Truitt, R. V.,	College Park,	Prince George.
White, A.,	College Park,	Prince George.
Williams, E. P.,	Woolford,	Dorchester.
Williams, R. C.,	Doncaster,	Charles.
JUNIOR CLASS.		
Andriopulos, L. D.,	Hyattsville,	Prince George.
Blundon, J. P.,	Riverdale,	Prince George.
Bowland, J. E.,	Kingston,	Somerset.
Brown, R. S.,	Gapland,	Washington.
Buchwald, C. H.,	Baltimore,	*Baltimore City.*
Carpenter, O.,	Plum Point,	Calvert.

NAME.	POST OFFICE.	COUNTY.
Carter, A. R.,	Annapolis,	Anne Arundel.
Clark, H.,	Roland Park,	Baltimore.
Cockey, C. T.,	Pikesville,	Baltimore.
Dale, R.,	Princess Anne,	Somerset.
Frazee, G. S.,	Oldtown,	Allegany.
Gibson, A. M.,	Baltimore,	*Baltimore City.*
Gray, T. D.,	Grayton,	Charles.
Hall, W. E.,	Baltimore,	*Baltimore City.*
Harrison, W. E.,	Sparrows Point,	Baltimore.
Hauver, P. A.,	Lantz,	Frederick.
Kelly, W. R.,	Baltimore,	*Baltimore City.*
Kislink, M.,	Washington,	*District of Columbia.*
Knode, J. H.,	Hagerstown,	Washington.
Levin, M.,	Baltimore,	*Baltimore City.*
McCutcheon, R. J.,	Braddock Heights,	Frederick.
McKenna, F. J.,	Woonsocket,	*Rhode Island.*
Massey, H.,	Massey,	Kent.
Montell, E. W.,	Catonsville,	Baltimore.
Pennington, L. R.,	Havre de Grace,	Harford.
Pennington, V. P.,	Millington,	Kent.
Perkins, W. T.,	Springfield,	Prince George.
Peter, P. N.,	Kensington,	Montgomery.
Pierson, E. H.,	Washington,	*District of Columbia.*
Robinson, C. E.,	Franktown,	*Virginia.*
Roberts, E. M.,	Philadelphia,	*Pennsylvania.*
Rohn, M. E.,	Baltimore.	*Baltimore City.*
Roney, C. H.,	Newville,	*Alabama.*
Todd, R. N.,	Salisbury,	Wicomico.
Tull, J. J.,	Crisfield,	Somerset.
West, R. P.,	Washington,	*District of Columbia.*
Wright, F. W.,	Forest Glenn,	Montgomery.

SOPHOMORE CLASS.

Aitcheson, W. J.,	Burtonsville,	Montgomery.
Bains, R. S.,	Washington,	*District of Columbia.*
Balkam, H. H.,	Washington,	*District of Columbia.*
Bopst, L. E.,	Frederick,	Frederick.
Bowling, J. E.,	Berwyn,	Prince George.
Bradley, J.,	Lonaconing,	Allegany.
Brockwell, W. A.,	Washington,	*District of Columbia.*
Burlingame, L. E.,	Washington,	*District of Columbia.*
Day, S. E.,	Baltimore,	*Baltimore City.*
Doleman, R. E.,	Washington,	*District of Columbia.*
Donnet, J.,	Baltimore,	*Baltimore City.*
Eddy, A. E.,	Berwyn,	Prince George.
Edelman, L. F.,	New York,	*New York City.*
Erdman, L. W.,	Baltimore,	*Baltimore City.*
Ford, B. A.,	Baltimore,	*Baltimore City.*
Gates, H. B.,	Takoma Park,	Prince George.
Grace, K.,	Easton,	Talbot.
Gray, G. B. D.,	Prince Frederick,	Calvert.

NAME.	POST OFFICE.	COUNTY.
Griffin, S. E.,	Highland,	Howard.
Hindman, E. R.,	Port Deposit,	Cecil.
Johnson, J. M.,	Baltimore,	*Baltimore City.*
Keefauver, L. S.,	Berwyn,	Prince George.
Knatz, E. G., Jr.,	Owings Mills,	Baltimore.
Knode, K. T.,	Martinsburg,	*West Virginia.*
Krauk, R. R.,	Colgate,	Baltimore.
Lodge, F. G.,	McConnellsburg,	*Pennsylvania.*
Loomis, L. T.,	Mt. Ranier,	Prince George.
McHenry, R.,	Frederick,	Frederick.
McLean, W.,	Owings Mills.	Baltimore.
Morris, P. H.,	Faulkner,	Charles.
Morris, W. G.,	Washington,	*District of Columbia.*
Reisinger, H. A.,	Rockville,	Montgomery.
Ruff, S. W.,	Roslyn,	Baltimore.
Sando, C. E.,	Washington,	*District of Columbia.*
Segar, R. B.,	Havre De Grace,	Harford.
Sharp, G. B.,	Glenelg,	Howard.
Shumate, J. O.,	Washington,	*District of Columbia.*
Smith, H.,	Arlington,	Baltimore.
Smith, K. E.,	College Park,	Prince George.
Spiro, P.,	New York,	*New York City.*
Steinmetz, F. J.,	Baltimore,	*Baltimore City.*
Sterling, J. C.,	Crisfield,	Somerset.
Sunstone, J. T.,	Baltimore,	*Baltimore City.*
Taylor, E. A.,	Stockton,	Worcester.
Tayman, G. S.,	Westwood,	Prince George.
Towles, R. C.,	College Park,	Prince George.
White, R.,	College Park,	Prince George.
Wilson, L. C.,	Nottingham,	*Pennsylvania.*

FRESHMAN CLASS.

Arnold, T. G.,	Hyattsville,	Prince George.
Bacon, C. H.,	Silver Spring,	Washington.
Barrett, N. W.,	Takoma Park,	Montgomery.
Barrett, W. D.,	Baltimore,	*Baltimore City.*
Bromley, J. A.,	Stockton,	Worcester.
Brooks, J. N.,	Hyattsville,	Prince George.
Burgess, C.,	Clinton,	Prince George.
Burritt, L.,	Washington,	*District of Columbia.*
Capitz, E.,	Washington,	*District of Columbia.*
Childs, L. M.	Highland,	Howard.
Chisolm, J. J.,	Berwyn,	Prince George.
Coggins, I.,	Washington,	*District of Columbia.*
Cohn, F. L.,	New York,	*New York City.*
Dearstyne, R. S.,	Port Chester,	*New York.*
Derrick, H. B.,	Takoma Park,	Prince George.
Deuterman, W. B.,	Washington,	*District of Columbia.*
Dixon, M. A.,	Chestertown,	Kent.
Donovan, C. G.,	Washington,	*District of Columbia.*
Dubel, B.,	Baltimore,	*Baltimore City.*
Emory, F. N.,	Pittsburg,	*Pennsylvania.*
Fatt, V. L.,	Washington,	*District of Columbia.*

NAME.	POST OFFICE.	COUNTY.
FELDMAN, J. R.,	Hagerstown,	Washington.
FREUNDLICH, H.,	Baltimore,	*Baltimore City.*
FRISTOE, H. W.,	Baltimore,	*Baltimore City.*
FUCHS, C. H.,	Port Chester,	*New York.*
GEMENY, W. A.,	Bozman,	Talbot.
GILPIN, W. F.,	Lanham,	Prince George.
GRAY, W. D.,	Prince Frederick,	Calvert.
HOWARD, D. J.,	Brookville,	Montgomery.
HUNTEMAN, C. F.,	Washington,	*District of Columbia.*
ILGENFRITZ, C. W.,	Lutherville,	Baltimore.
JOY, G. W., Jr.,	Leonardtown,	St. Mary's.
JOHNSTON, L. E.,	Hagerstown,	Washington.
JUENEMAN, J. G.,	Washington,	*District of Columbia.*
KIRKLEY, S. S.,	Baltimore,	*Baltimore City.*
KISHPAUGH, W. M.,	Harrisburg,	*Pennsylvania.*
KOHN, W. S.,	New York,	*New York City.*
LANGSDALE, S. H.,	Easton,	Talbot.
LARSEN, C. L.,	Glenwood,	*Long Island*
LONDON, O.,	New York,	*New York City.*
MANN, J. W.,	Washington,	*District of Columbia.*
MEDINGER, A. C.,	Balboa,	*Canal Zone.*
MESS, R. W.,	Chevy Chase,	Montgomery.
MILLER, F.,	Baltimore,	*Baltimore City.*
MILLER, W. L.,	Cumberland,	Allegany.
MONTGOMERY, T.,	Riverdale,	Prince George.
MORAES, JOSI,	Hyattsville,	Prince George.
MORGAN, M. A.,	Berlin,	Worcester.
NASH, P. M.,	Washington,	*District of Columbia.*
PEACOCK, W. P., Jr.,	Anacostia,	*District of Columbia.*
VON PREISSIG, M. J.,	Washington,	*District of Columbia.*
ROCKWELL, A. L.,	Berkley Springs,	*West Virginia.*
ROCKWELL, W. R.,	Berkley Springs,	*West Virginia.*
ROUTH, J. P.,	New York,	*New York City.*
SELLMAN, A. H.,	Washington,	*District of Columbia.*
SENART, B. F.,	Washington,	*District of Columbia.*
SHOEMAKER, H. R.,	Ashton,	Montgomery.
STURGIS, G. M.,	Hyattsville,	Prince George.
TALIAFERRO, J. E.,	Ware Neck,	*Virginia.*
TARBUTTON, C. C.,	Crumpton,	Queen Anne.
THOMSEN, F. L.,	Hyattsville,	Prince George.
WALLACE, S. C.,	Baltimore,	*Baltimore City.*
WATSON, R. D.,	Welcome,	Charles.
WILLIAMS, A. V.,	Nanticoke,	Wicomico.
WINANT, H. B.,	Washington,	*District of Columbia.*
XAVIER, P.,	Sao Paulo,	*Brazil.*

SUB-FRESHMAN CLASS.

BALLARD, R. K.,	Beltsville,	Prince George.
BEALL, O. L.,	Beltsville,	Prince George.
BEALL, S. W., Jr.,	Beltsville,	Prince George.
BOONE, A. W.,	Philadelphia,	*Pennsylvania.*
BRANDT, J. H., Jr.,	Baltimore,	*Baltimore City.*
CLARK, J. T.,	Washington,	*District of Columbia.*

NAME.	POST OFFICE.	COUNTY.
Clark, P. E.,	La Plata,	Charles.
Dietrich, J. F.,	W. Arlington,	Baltimore.
Doing, W. P.,	Beltsville,	Prince George.
Ezekiel, M. J. B.,	Knoxville,	*Tennessee.*
France, R.,	Washington,	*District of Columbia.*
Gordon, J. N. H.,	Washington,	*District of Columbia*
Haig, F. M.,	Riverdale,	Prince George.
Hart, D. C.,	Beltsville,	Prince George.
Hungerford, H. R.,	Wayside,	Charles.
Hunt, Chas., Jr.,	Washington,	*District of Columbia.*
James, C. G.,	Easton,	Talbot.
Markey, H. E.,	Ottumway,	*Iowa.*
Mills, J. E.,	Hyattsville,	Prince George.
Posey, K. C.,	La Plata,	Charles.
Posey, W. B.,	Anacostia,	*District of Columbia.*
Pyle, C. T.,	Baltimore,	*Baltimore City.*
Pywell, E. E.,	College Park,	Prince George.
Quinn, D. L.,	Crisfield,	Somerset.
Rook, T. E.,	College Park,	Prince George.
Sando, W. J.,	Washington,	*District of Columbia.*
Ungvarski, J. J.,	Tarrington,	*Connecticut.*
Walker, B.,	Jessup,	Howard.
Williams, W. P.,	Doncaster,	Charles.

PREPARATORY CLASS.

Benson, R. B.,	Riverdale,	Prince George.
Cunha, C.,	Hyattsville,	Prince George.
Chisolm, R. D.,	Berwyn,	Prince George.
Daniels, M. B.,	E. Hyattsville,	Prince George.
Dickinson, H. M., Jr.,	Washington,	*District of Columbia.*
Donaldson, E. E.,	Laurel,	Prince George.
Etienne, A. D.,	Berwyn,	Prince George.
Ginder, L. M.,	Hyattsville,	Prince George.
Latimer, T. M.,	Hyattsville,	Prince George.
Miller, A. A.,	College Park,	Prince George.
Miller, K. S.,	Washington,	*District of Columbia.*
Naylor, H.,	Kenilworth,	*District of Columbia.*
Porter, G. C.,	Pittsburg,	*Pennsylvania.*
Rust, A. D.,	Mt. Ranier,	Prince George.
Sawyer, E. M.,	Baltimore,	*Baltimore City.*
Sheppard, D. H.,	Bynum,	Harford.
Siegert, L. L.,	Galloways,	Anne Arundel.
Smith, H. L., Jr.,	Riverdale,	Prince George.
Smith, J. E., Jr.,	Galloways,	Anne Arundel.
Vincent, J. M.,	Hyattsville,	Prince George.
Welsh, C. E.,	Riverdale,	Prince George.
Oliver, J. S.,	Berwyn,	Prince George.

SECOND YEAR AGRICULTURAL.

Bright, C. W.,	Centreville,	Queen Anne.
Cole, K. C.,	Port Chester,	*New York.*
Davis, Geo. A.,	Rocks,	Harford.

NAME.	POST OFFICE.	COUNTY.
Drake, L. R.,	Royal Oaks,	Talbot.
Garey, W. M.,	Denton,	Caroline.
Johnston, N.,	Baltimore,	*Baltimore City.*
Long, T. B.,	Crisfield,	Somerset.
Maguire, H. E.,	S. Bethlehem,	*Pennsylvania.*
Maus, G. V.,	Westminster,	Carroll.
Parran, B. J.,	St. Leonards,	Calvert.
Groman, J. R.,	S. Bethlehem,	*Pennsylvania.*
Radebaugh, A. D.,	Bynum,	Harford.
Shipley, H. B.,	College Park,	Prince George.
Shillinger, J. E.,	Easton,	Talbot.
Shearman, A. M.,	Riverdale,	Prince George.
Stanton, W. C.,	Grantsville,	Garrett.
Skinner, W. H.,	Mt. Washington,	Baltimore.

SECOND YEAR HORTICULTURAL.

Dunnington, F.,	Washington,	*District of Columbia.*
Hoffman, C. B.,	Hagerstown,	Washington.
Smoot, L. R.,	Kensington,	Montgomery.

FIRST YEAR AGRICULTURAL AND HORTICULTURAL.

Abraham, J. H.,	Montgomery,	*Alabama.*
Ambrose, C. G.,	New York,	*New York City.*
Beavers, P. H.,	Richmond,	*Virginia.*
Calwell, J. S., Jr.,	Baltimore,	*Baltimore City.*
Campbell, H. Z.,	Brooklyn,	*New York.*
Chamberlain, C. T.,	Washington,	*District of Columbia.*
Coslett, E. W.,	Philadelphia,	*Pennsylvania.*
Cuthbertson, H. B.,	Washington,	*District of Columbia.*
Dear, R. D.,	Riverdale,	Prince George.
Gilpin, D.,	Sandy Spring,	Montgomery.
Gittinger, A. B.,	Baltimore,	*Baltimore City.*
Gummer, F. G.,	Baltimore,	*Baltimore City.*
Heerman, H.,	New York,	*New York City.*
Hitchens, J. L., Jr.,	Baltimore,	*Baltimore City.*
Jarrell, W. E.,	Greensboro,	Caroline.
Lally, M. J.,	Berwyn,	Prince George.
Mallery, J. P.,	Lanham,	Prince George.
Mason, T. B.,	Washington,	*District of Columbia.*
Pearce, C. H.,	Riverdale,	Prince George.
Sauber, H.,	Washington,	*District of Columbia.*
Schaefer, R. L.,	Washington,	*District of Columbia.*
Stabler, N. S.,	Brighton,	Montgomery.
Wilkinson, C. K.,	Alexandria,	*Virginia.*
Willis, J. A.,	Glendale,	Prince George.
Wilson, G. D.,	Pylesville,	Harford.
Xerocostas, A. B.,	Hyattsville,	Prince George.

SPECIAL STUDENTS.

NAME.	POST OFFICE.	COUNTY.
Allanson, H. E.,	Washington,	*District of Columbia.*
Connolly, H. M.,	Washington,	*District of Columbia.*
Marmol, A.,	Chincha,	*Peru.*
Schulz, G. J.,	College Park,	Prince George.
Williams, R.,	Baltimore,	*Baltimore City.*
Willson, L. G.,	Silver Spring,	Montgomery.
Woolley, Wm.	Washington,	*District of Columbia.*
Yohe, H. S..	Washington,	*District of Columbia.*

STUDENTS IN THE SHORT WINTER COURSES.

Adams, Mrs. U. S.,	Catonsville,	Baltimore.
Appleman, Mrs. E. R.,	Hyattsville,	Prince George.
Arrington, J. R.,	Henryton,	Carroll.
Banner, Mrs. D.,	Washington,	*District of Columbia.*
Banner, E. P.,	Washington,	*District of Columbia.*
Barnes, H. D.,	Monrovia,	Frederick.
Barrett, Miss E. T.,	Washington,	*District of Columbia.*
Bart, B. F.,	Brentwood,	Prince George.
Bates, A. I.,	High Bridge,	
Beall, Mrs. F. W.,	Beltsville,	Prince George.
Beall, Miss M. C.,	Beltsville,	Prince George.
Beall, Miss S. C.,	Beltsville,	Prince George.
Beauchamp, Miss M.	College Park,	Prince George.
Benson, C. L.,	Riverdale,	Prince George.
Berger, Mrs. F. G.,	Washington,	*District of Columbia.*
Bewley, G. P.,	Berwyn,	Prince George.
Bird, Miss Anna,	Laurel,	Prince George.
Bird, Mrs. H. C.,	Laurel,	Prince George.
Biret, J. F.,	Brookland,	*District of Columbia.*
Bohannon, Mrs. C. S.,	Overlea,	Baltimore.
Bomberger, Mrs. F. B.,	College Park,	Prince George.
Bomner, E. P.,	Washington,	*District of Columbia.*
Bond, Miss Anna,	Woodensburg,	Baltimore.
Bowen, F. H.,	Laurel,	Prince George.
Bowie, F. V.,	Laurel,	Prince George.
Bowie, F. W.,	Upper Marlboro,	Prince George.
Brace, G. W.,	Washington,	*District of Columbia.*
Branson, Mrs.,	Hyattsville,	Prince George.
Brinkley, Miss R.,	College Park,	Prince George.
Cane, J. H.,	Brookland,	*District of Columbia.*
Chamberlain, C.,	Washington,	*District of Columbia.*
Chamberlain, C.,	Fremont,	*Michigan.*
Chamberlain, C. T.,	Washington,	*District of Columbia.*
Chamberlain, J. F.,	Washington,	*District of Columbia*
Chamberlain, H. E.,	Washington,	*District of Columbia.*
Chamberlain, H. E.,	Fremont,	*Michigan.*
Chandler, F. M.,	Berwyn,	Prince George.
Chapin, J. K.,	Washington,	*District of Columbia.*
Chase, N. D.,	Baltimore,	*Baltimore City.*
Chase, Mrs. G. F.,	Washington,	*District of Columbia.*
Chase, Mrs. W. H.,	Riverdale,	Prince George.

NAME.	POST OFFICE.	COUNTY.
Chestnut, O. S.,	Hyattsville,	Prince George.
Chestnut, Mrs. V. H.,	Hyattsville,	Prince George.
Chisolm, Mrs. F. M	Berwyn,	Prince George.
Claflin, Mrs. W. E.,	College Park,	Prince George.
Close, Mrs. C. P.,	College Park,	Prince George.
Colburn, Alila B.,	Baltimore,	*Baltimore City.*
Cole, J. A.,	Federalsburg,	Caroline.
Cole, J. E.,	Federalsburg,	Caroline.
Colflesh, J. H.,	Washington,	*District of Columbia.*
Coster, R.,	Princess Anne,	Somerset.
Craig, N. C.,	Washington,	*District of Columbia.*
Crain, F. M.,	Augusta,	*Illinois.*
Crawford, A. W.,	Washington,	*District of Columbia.*
Crist, R. G.,	Glenelg,	Howard.
Daly, L. E.,	Washington,	*District of Columbia.*
Depue, R.,	Washington,	*District of Columbia.*
De Villiss, F. M.,	New Windsor,	Carroll.
Donnally, Miss D.,	Washington,	*District of Columbia.*
Dorsch, J. C.,	Baltimore,	*Baltimore City.*
Dulin, H. S.,	Bluemont,	*Virginia.*
Duvall, R. L.,	Baltimore,	*Baltimore City.*
Fisher, Miss A.,	Carlisle,	*Pennsylvania.*
Fisk, C.,	Kensington,	Montgomery.
Foster, Mrs. H. M.,	Washington,	*District of Columbia.*
Freeman, Miss E.,'	Berwyn,	Prince George.
Frey, Miss M.,	Beltsville,	Prince George.
Frey, Miss S.,	Beltsville,	Prince George.
Fromm, J.,	Pikesville,	Baltimore.
Fromm, Wm.,	Pikesville,	Baltimore.
Fulford, A. M., Jr.,	Bel Air,	Harford.
Gantz, C. R.,	Washington,	*District of Columbia.*
Gates, H.,	St. Michaels,	Talbot.
Getz, H. R.,	Washington,	*District of Columbia.*
Gilbert, Miss M.,	Forest Hill,	Harford.
Godfrey, Miss V. M.,	Baltimore,	*Baltimore City.*
Grenfell, F. A.,	Washington,	*District of Columbia.*
Grimes, A. W.,	Providence,	*Rhode Island.*
Gruble, W. H.,	Washington,	*District of Columbia.*
Gude, Alex.,	Hyattsville,	Prince George.
Hall, J. M.,	Hyattsville,	Prince George.
Hall, Miss M. H.,	Beltsville,	Prince George.
Hamilton, Mrs.	Hyattsville,	Prince George.
Hand, Miss Ethel,	Branchville,	Prince George.
Hand, Miss M. S.,	Beltsville,	Prince George.
Hanley, M. D.,	Washington,	*District of Columbia*
Hanson, A. L.,	McConchie,	Charles.
Hardesty, Mrs. E.,	Riverdale,	Prince George.
Harris, E.,	Betterton,	Kent.
Harrison, Mrs. H. T.,	College Park,	Prince George.
Harwood, W. B.,	Bel Air,	Harford.
Hawker, G. H.,	Frederick City,	Frederick.
Higman, H. L.,	Sudlersville,	Queen Annes.
Holmes, T. H.,	Centerville,	Queen Annes.
Holmes, Mrs. T. H.,	Centerville,	Queen Annes.

NAME.	POST OFFICE.	COUNTY.
HUGHES, B. C.,	Rockville,	Montgomery.
HUGHES, J. W.,	Ammendale,	Prince George.
HUEPER, MISS A. R.,	Berwyn,	Prince George.
HUERSCHER, MISS T. L.,	Berwyn,	Prince George.
HYDE, T.,	Washington,	*District of Columbia.*
JANNEY, J. E.,	Sandy Spring,	Montgomery.
JACKSON, W. B.,	Hyattsville,	Prince George.
JONES, H. M.,	Neavitt,	Talbot.
JONES, MRS. W. E.,	Richmond,	*Virginia.*
KEEFAUVER, MRS. J. F.,	Berwyn,	Prince George.
KEELER, MISS A. S.,	Baltimore,	*Baltimore City.*
KELLY, F. C.,	Woodridge,	*District of Columbia.*
KNOWLES, MRS. L. C.,	Riverdale,	Prince George.
KRAFT, MRS. MARIE,	Baltimore,	*Baltimore City.*
LAITEM, MISS L.,	Glencoe,	Baltimore.
LAUGHLIN, C. F.,	Morgansville,	
LAWRENCE, G. H.,	Brentwood,	Prince George.
LAWSON, MRS. H. A.,	Ellicott City,	Howard.
LEE, L. R.,	Leesburg,	*Virginia.*
LEE, R. H.,	Washington,	*District of Columbia.*
LEONARD, H.,	Washington,	*District of Columbia.*
LITTLE, F. W.,	Belcamp,	Harford.
LOLSON, MISS IDA,	Laurel,	Prince George.
LONG, G. L.,	Crisfield,	Somerset.
LONG, T. B.,	Crisfield,	Somerset.
MACKINTOSH, DR. J. A.,	Easton,	Talbot.
MAGUIRE, H. E.,	S. Bethlehem,	*Pennsylvania.*
MARLOWE, MRS. W. H.,	College Park,	Prince George.
MARSHALL, D. F.,	Pittsburg,	*Pennsylvania.*
MARSH, H.,	Riverdale,	Prince George.
MARTIN, J. F.,	Washington,	*District of Columbia.*
MCQUINN, B. M.,	Hyattsville,	Prince George.
MILLER, A. E.,	S. Bethlehem,	*Pennsylvania.*
MILLS, MARION E.,	Sparrows Point,	Baltimore.
MILSTEAD, MRS. J.,	Washington,	*District of Columbia.*
MORTON, MISS L. B.,	Washington,	*District of Columbia.*
NEAVE, R. E.,	Hughesville,	Charles.
NELSON, H. P.,	Monkton,	Baltimore.
NICHOLS, FRANCIS,	Muirkirk,	Prince George.
NORRIS, F.,	Van Bibber,	Harford.
NORTON, MRS. J. B. S.,	Hyattsville,	Prince George.
OPPERMAN, MRS. C. L.,	Berwyn,	Prince George.
OPPERMAN, MISS E. B.,	Berwyn,	Prince George.
ORR, MRS. H. R.,	Washington,	*District of Columbia.*
PALMORE, MRS. J. I.,	College Park,	Prince George.
PAUL, B. S.,	Congress Heights,	*District of Columbia.*
PERKINS, CAROLINE	Springfield,	Prince George.
RADCLIFFE, C. W.,	Bozman,	Talbot.
RADCLIFFE, D. M.,	Hyattsville,	Prince George.
RADEBAUGH, G. W.,	Bynum,	Harford.
READING, H. H., Jr.,	Hayden,	Queen Annes.
REILLY, MISS L.,	College Park,	Prince George.
RENSHAW, L. C.,	Princess Anne,	Somerset.
RHODES, MRS. C. M.,	College Park,	Prince George.

NAME.	POST OFFICE.	COUNTY.
Rice, G. C.,	Baltimore,	*Baltimore City.*
Rice, M. E.,	Baltimore,	*Baltimore City.*
Robertson, Mrs. C. J.,	Mt. Ranier,	Prince George.
Robertson, C.,	Mt Ranier,	Prince George.
Rockwood, Mrs. J. G.,	Washington,	*District of Columbia.*
Rowell, E. B.,	Hyattsville,	Prince George.
Rutley, Mrs. G. H.,	Laurel,	Prince George.
Sanger, O. S.,	Easton,	Talbot.
Scaggs, Miss E. K.,	Branchville,	Prince George.
Scarborough, J. G.,	Street,	Harford.
Scarborough, L. C.,	Street,	Harford.
Schaaff, J. T.,	Glencarlyn,	*Virginia.*
Schmitz Mrs. N.,	Hyattsville,	Prince George.
Schulz, G. J.,	Laurel,	Prince George.
Seeders, R.,	Hobbs,	Caroline.
Sheppard, Mrs.,	Hyattsville,	Prince George.
Sheppard, D. H.,	Bynum,	Harford.
Simonds, A. W.,	Roland Park,	*Baltimore City.*
Simonds, F. W.,	Washington,	*District of Columbia.*
Simpson, Mrs. L. B.,	Hyattsville,	Prince George.
Sinton, R. M.,	Henryton,	Carroll.
Smith, Mrs. C. P.,	College Park,	Prince George.
Smith, Miss E. V.,	Washington,	*District of Columbia.*
Smith, Mrs. Geo. M.,	Washington,	*District of Columbia.*
Staley, R.,	Boyds,	Montgomery.
Sturzenegger, J.,	Washington,	*District of Columbia.*
Summers, Miss Bessie L.,	Hagerstown,	Washington.
Taber, Mrs. W. C.,	Washington,	*District of Columbia.*
Taylor, E. J.,	Berwyn,	Prince George.
Thomas, Grace,	Washington,	*District of Columbia.*
Thomas, Miss M. E.,	Sandy Spring,	Montgomery.
Tilp, W. E.,	Mt. Ranier,	Prince George.
Townshend, G. C.,	Mitchellsville,	Prince George.
Townshend, Miss S. E.,	Mitchellsville,	Prince George.
Truesdell, J. A.,	Washington,	*District of Columbia.*
Valiant, Elizabeth,	College Park,	Prince George.
Waite, Mrs. R. H.,	College Park,	Prince George.
Walker, E. S.,	Monrovia,	Frederick.
Ward, G. F.,	Ellicott City,	Howard.
Ward, Mrs. J. B.,	Jarrettsville,	Harford.
Warfield, E. S.,	Cookesville,	Howard.
Weer, Miss L. E.,	Baltimore,	*Baltimore City.*
Wells, Mrs. H. L.,	Rockville,	Montgomery.
Wheeler, Miss Inez,	Lanham,	Prince George.
Whisler, G. H.,	Denton,	Caroline.
Whiteley, Mrs. A. C.,	Baltimore,	*Baltimore City.*
Whitely, Mrs. J. F.,	Baltimore,	*Baltimore City.*
White, Miss Kate,	College Park,	Prince George.
White, Mrs. S. H.,	College Park,	Prince George.
Willis, A. G.,	Lagrange,	*Virginia.*
Winbigler, Dr. A. O.,	Braddock,	Frederick.
Zimmerman, A. G.,	Frederick City,	Frederick.

SUMMARY OF STUDENTS.

Graduate	14
Senior	17
Junior	37
Sophomore	48
Freshman	66
Sub-Freshman	29
Preparatory	22
Second Year Agricultural	17
Second Year Horticultural	3
First Year Agricultural and Horticultural	26
Special	8
Short Winter Courses	201
Total	488

LIST OF PRESIDENTS AT THE MARYLAND AGRICULTURAL COLLEGE.

1. Prof. Benjamin Hallowell,	President of the Faculty	1859—1860
2. Rev. J. W. Scott,	" " "	1860—1860
3. Prof. Colby,	" " "	1860—1861
4. Prof. Henry Onderdonk,	" " "	1861—1864
5. Prof. N. B. Worthington,	" " "	1864—1867
6. Prof. C. L. C. Minor,	President of the College	1867—1868
7. Admiral Franklin Buchanan,	" " "	1868—1869
8. Prof. Samuel Regester,	" " "	1869—1873
9. General Samuel Jones,	" " "	1873—1875
10. Captain W. H. Parker,	" " "	1875—1883
11. General Augustus Smith,	" " "	1883—1887
12. Allen Dodge, Esq., Pro Tem.,	" " "	1887—1888
13. Major Henry E. Alvord,	" " "	1888—1892
14. R. W. Silvester, LL. D.,	" " "	1892—1912
15. Thos. H. Spence, M. A., Acting	" " "	1912—1913
16. H. J. Patterson, Sc. D.,	" " "	1913—....

GRADUATES WITH DEGREES AND ADDRESSES.

The following members of the various graduating classes have been located. Any information leading to further additions, addresses and occupations of Alumni will be gratefully received.

CLASS OF '62.

*Franklin, J., B. S.
*Sands, W. B., A. B.

CLASS OF '63.

*Calvert, C. B., A. B.
Todd, W. B., B. S.

CLASS OF '64.

Hall, D., A. M.

CLASS OF '66.

*Hall, E. of B., A. B.
*Roberts, L., Ph. B.
Waters, F., A. B., West River, Md.

CLASS OF '71.

Soper, F. A., A. B., (M. A. '74), Supt. of Public Schools, Baltimore, Md.

CLASS OF '73.

*Henry R. S., A. B., (M. A. '75).
Miller, O., A. B., (M. A. '75).
Regester, J. A., A. B.
Worthington, D., A. B.
Worthington, W., A. B.

CLASS OF '74.

Coffren, J. H., B. S., (M. A. '77).
Davis, H. M., A. B., (M. A. '77), Poolesville, Md.
Griffith, L. A., A. B., (M. A. '77), Upper Marlboro, Md.
Norwood, F. C., A. B., (M. A. '77), Frederick, Md.

CLASS OF '75.

Gray, J. B., A. B., (M. A. '78), Prince Frederick, Md.
Hyde, J. F. B., A. B., 1803 Bolton St., Baltimore, Md.
Lerch, C. E., B. S., Lerch Bros., 110 Hanover St., Baltimore, Md.
Miller, L., B. S., El Paso, Texas.

---

*Deceased.

CLASS OF '76.

*Blair, W. J., B. S., (M. S. '79).
Thomas, T. H., B. S., Maddox, Md.
*Worthington, J. L., B. S.
Preston, J. S., B. S., 815 N. Charles St., Baltimore, Md.

CLASS OF '77.

*Beall, R. R., B. S.
Emack, E. G., B. S., District Building, Washington, D. C.
*Thomas, G., B. S.
Truxton, S., B. S.

CLASS OF '78.

Thomas, W., B. S., Westminster, Carroll Co., Md.

CLASS OF '80.

Gale, H. E., A. B., 260 W. Hoffman St., Baltimore, Md.

CLASS OF '81.

Houston, T. T., A. B., Baltimore, Md.
Mercer, R. S., A. B.
Porter, W. R., A. B.
Rapley, R. R., B. S., 1931 Sixteenth St., N. W., Washington, D. C.
Thomas, W. H., A. B., Westminster, Md.
Wood, C. W., A. B.

CLASS OF '82.

Bowen, P. A., Jr., A. B., 1413 G St., N. W., Washington, D. C.
Freeland, H., A. B., Mutual, Md.
Saunders, C. A., A. B.
*Stonestreet, J. H., A. B.
Wenner, C., A. B.

CLASS OF '83.

Chew, R. B. B., A. B., 512 F St., N. W., Washington, D. C.
Kirby, W. A., A. B., Trappe, Md.
*Lakin, W. A., A. B.
Rapley, E. F., A. B., 628 Louisiana Ave., Washington, D. C.

CLASS OF '84.

Martin, F., B. S.
Lakin, W. T., A. B., Cumberland, Md.

CLASS OF '88.

Chambliss, S. M., A. B., News Building, Chattanooga, Tenn.
Hazen, M. C., B. S., City Surveyor, Washington, D. C.
Johnson, L. B., A. B., Morganza, Md.
*Sigler, W. A., B. S.
Smith, R. E., B. S., Ridgely, Md.
Tolson, A. C., A. B., Gunther Building, Baltimore, Md.
Weems, J. B., B. S.

---

*Deceased.

CLASS OF '89.

Griffith, T. D., B. S., Redland, Md.
Lewis, G., B. S.
Pindell, R. M., B. S., Continental Building, Baltimore, Md.
*Saulsbury, N. R., B. S.
Witmer, F., B. S., Hagerstown, Md.

CLASS OF '90.

Calvert, R. C. M., B. S., Bangalore, India.
Keech, W. S., B. S., Maryland National Bank Building, Towson, Md.
Manning, C. C., B. S., 16 Avon St., Portland, Me.
*Niles, E. G., B. S.
Russell, R. L., B. S., Anadarko, Okla.
Soles, C. E., B. S., McKeesport, Pa.

CLASS OF '91.

*Branch, C., B. S.
*Langley, J. C., B. S.
Latimer, J. B., B. S., Broomes Island, Md.
*Penn, S., B. S.
Veitch, F. P., B. S., College Park, Md.

CLASS OF '92.

Besley, F. W., A. B., Johns Hopkins University, Baltimore, Md.
Brooks, J. D., A. B., Medical Dept., care War Dept., Washington, D. C.
Calvert, G. H., A. B., 425 D St., N. W., Washington, D. C.
Chew, F., B. S.
Childs, N., B. S., Millersville, Md.
Gambrill, S. W., B. S., Fidelity and Deposit Co., 502 Fidelity Bldg., Baltimore, Md.
Johnson, E. D., A. B., West Pittston, Pa.
Ray, J. E., A. B., Columbian Building, Washington, D. C.

CLASS OF '93.

Alvey, C., B. S., Hagerstown, Md.
Buckley, S. S., B. S., (M. S. '99), College Park, Md.
Graff, G. Y., B. S., 3323 Fourteenth St., N. E., Washington, D. C.
Holzapfel, H. H., Jr., B. S., Hagerstown, Md.
Lawson, J. W., B. S., Southern Railway, Washington, D. C.
Sherman, H. C., B. S., Columbia University, New York, N. Y.

CLASS OF '94.

Best, H., B. S., Birdsville, Md.
Bomberger, F. B., B. S., (M. A. '02), College Park, Md.
Brown, A. S., B. S., 1432 S St., N. W., Washington, D. C.
Cairnes, C. W., B. S., U. S. Revenue Cutter Service, Treasury Dept., Washington, D. C.
Chiswell, B. M., B. S., Florence Court, Washington, D. C.
Dent, H. M., B. S.
Foran, T. E., B. S., Port Deposit, Md.

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*Deceased.

Key, S., B. S., (M. S. '02), 1733 H. St., N. W., Washington, D. C.
*Pue, R. R., B. S.
Sudler, M. T., B. S., (M. S. '02), University of Kansas, Lawrence, Kan.
Weimer, C. H., B. S., Shamokin, Pa.

CLASS OF '95.

Bannon, J. G., B. S., Jessups, Md.
Claggett, G. H., B. S., Upper Marlboro, Md.
*Compton, B., B. S.
Crapster, W. B., B. S., 402 Sixth St., N. W., Washington, D. C.
Edelen, G. S., B. S., Central High School, Washington, D. C.
Graham, H. R., B. S., Chestertown, Md.
Harding, S. H., B. S., 1737 T St., N. W., Washington, D. C.
Harrison, R. L., B. S., Geological Survey, Washington, D. C.
*Jones, H. C., B. S.
McCandlish, L., B. S., Reading, Pa.
McDonnell, C. C., B. S., Bureau of Chemistry, Washington, D. C.
Mulliken, C. S., B. S., Brookfield Center, Conn.
Skinner, W. W., B. S., Bureau of Chemistry, Washington, D. C.
Sliger, R. E., B. S., Oakland, Md.
Timanus, J. J., B. S., Towson, Md.
Wilson, G. W., Jr., B. S., Upper Marlboro, Md.

CLASS OF '96.

Anderson, J., Jr., B. S., Shreveport, La.
Beale, R. B., B. S., General Electric Co., Schenectady, N. Y.
Crapster, T. G., B. S., U. S. S. Itasca, Baltimore, Md.
Dirickson, C. W., B. S., Berlin, Md.
*Eversfield, D., A. B.
Heyser, H. H., A. B., Hagerstown, Md.
Laughlin, J. R., B. S., (M. S. '01, M. A. '02), Hagerstown, Md.
Rollins, W. T. S., B. S., Seat Pleasant, Md.
Walker, C. N., B. S., 218 F St., N. W., Washington, D. C.

CLASS OF '97.

Calvert, C. B., A. B., College Park, Md.
Cronmiller, J. D., A. B., Laurel, Md.
Gill, A. S., B. S., 215 St. Paul St., Baltimore, Md.
Gill, N. H., B. S., Glyndon, Md.
Graham, J. G. R., A. B., 212 La Salle St., Chicago, Ill.
Heward, H., B. S., Water and Spruce Sts., Philadelphia, Pa.
Lewis, G., B. S., Straight Creek Coal and Coke Co., Pineville, Ky.
Nelligan, B. S., B. S., District Building, Washington, D. C.
Posey, F., A. B., Frederick, Md.
Queen, C J., B. S., 165 State St., Brooklyn, N. Y.
Schenck, G. K. W., B. S., 343 Boulevard, Rockaway Beach, N. Y.
Watkins, B., Jr., B. S., Chesterfield, Md.
Welty, H. T., 349 S. Fourth Ave., Mt. Vernon, N. Y.
*Weedon, W. S., B. S., (M. S., '98).
Whiteford, G. H., B. S., Albright College, Myerstown, Pa.

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*Deceased.

CLASS OF '98.

Allnut, C. V., A. B., Neuva Gerosa, Isle of Pines, Cuba.
Barnett, D. C., A. B., (M. A. '07), Cambridge, Md.
Burroughs, C. R., B. S., Tompkinsville, Md.
Cameron G. W., B. S.
Dennison, R. E., A. B., War Department, Washington, D. C.
Dickerson, E. T., A. B., (M. A. '03), 301 St. Paul St., Baltimore, Md.
Houston, L. J., Jr., A. B., 602 Parkwyth Ave., Baltimore, Md.
Lillibridge, J. A., A. B., Laurel, Md.
Mitchell, J. H., M. E., 619 Main St., Richmond, Va.
Nesbitt, W. C., B. S., Southern Trust Co., Wilmington, Del.
Peterson, G., A. B., St. Leonards, Md.
Ridgely, C. H., B. S., Sykesville, Md.
Robb, P. L., B. S., Baltimore City College, Baltimore, Md.
Whitely, R. P., A. B., Hyattsville, Md.

CLASS OF '99.

*Blandford, J. C., M. E.
Collins H. E., A. B., Crisfield, Md.
Eyster, J. A. E., B. S., University of Wisconsin, Madison, Wis.
Galt, M. H., A. B., 424 Askew Ave., Kansas City, Mo.
Gough, T. R., B. S., Barnesville, Md.
Hammond, W. A., A. B., 218 Law Building, Baltimore, Md.
Kenley, J. F., Jr., M. E., Baltimore Bridge Co., Baltimore, Md.
McCandlish, R. J., B. S., Hancock, Md.
Price, T. M., B. S., Bureau of Animal Industry, Washington, D. C.
Robb, J. B., B. S., Department of Agriculture, Richmond, Va.
*Sedwick, J. O., B. S.
Shamberger, D. F., M. E., Sparrows Point, Md.
*Shipley, J. H., B. S.
Straughn, M. N., B. S., 121 B St., N. W., Washington, D. C.
Whitehill, I. E., A. B., New Windsor, Md.

CLASS OF '00.

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Instructor in Languages.

O. C. BRUCE, B. S.,
Instructor in Agronomy.

MISS L. E. CONNER, A. B.,
Associate Librarian.

ALBERT WHITE, B. S.,
Assistant in Vegetable Culture.

OTHER OFFICERS.

*HERSCHEL FORD, Ph. B.,
Registrar and Treasurer.

ALLEN GRIFFITH, M. D.,
Surgeon.

WIRT HARRISON,
Assistant Treasurer.

MRS M. T. MOORE,
Matron in Domestic Department.

A. L. PERRIE,
Stenographer.

G. H. VEGA,
Armorer, Band Master and Clerk to the Military Department.

STATE WORK.

STATE DEPARTMENT OF FERTILIZER, FEED AND AGRICULTURAL LIME CONTROL.

(ORGANIZED 1894.)

H. B. McDONNELL, M. S., M. D.,
State Chemist.

T. D. JARRELL, B. S.,
Assistant Chemist.

H. J. WHITE, B. S.
Assistant Chemist.

*Deceased.

R. C. WILLIAMS, B. S.,
Assistant Chemist.

A. M. GIBSON,
Assistant Chemist.

C. G. REMSBURG, B. S.,
Assistant Chemist.

GRAYSON BAGGS,
Clerk.

J. H. BROOKE,
Inspector.

G. J. MICHAEL,
Inspector.

G. L. BOUNDS,
Inspector.

E. M. PRICE,
Inspector.

H. C. WHITEFORD,
Inspector.

J. S. SCARBOROUGH,
Inspector.

N. J. WALSH,
Inspector.

W. B. EVERETT, Jr.,
Inspector.

C. T. DAY,
Inspector.

STATE DEPARTMENT OF FARMERS' INSTITUTES.

(ORGANIZED 1896.)

RICHARD S. HILL, M. D.,
Director.

STATE HORTICULTURAL DEPARTMENT.

(ORGANIZED 1898.)

T. B. SYMONS, M. S.,
Chief Inspector.

J. B. S. NORTON, M. S.,
Botany, Vegetable Pathology.

H. BECKENSTRATER, M. S.,
Pomology.

E. N. CORY, M. S.,
Entomology.

C. P. SMITH, B. S., A. M.,
Botany.

B. W. ANSPON, B. S.,
Floriculture, Landscape Gardening.

C. E. TEMPLE, M. S.,
Plant Pathology.

S. B. SHAW, B. S.,
Pomology.

E. F. STODDARD, B. S.,
Vegetable Culture.

W. C. TRAVERS,
Inspector.

MISS ANNA E. F. McCARTHY,
Clerk.

EXTENSION SERVICE.

(ORGANIZED 1914.)

T. B. SYMONS, Director.
N. SCHMITZ, Agronomy.
W. T. L. TALIAFERRO, Farm Management.
G. H. ALFORD, State Agent.
G. E. WOLCOTT, Dairy Husbandry.
C. L. OPPERMAN, Poultry Husbandry.
R. BRIGHAM, Publicity and Sheep Husbandry.
C. E. TEMPLE, Plant Pathology.
S. B. SHAW, Pomology.
KATHARINE PRITCHETT, Home Economics.

COUNTY AGENTS.

Allegany .....JOHN McGILL, JR., Cumberland.
Anne Arundel.....To be appointed.
Baltimore .....J. F. HUDSON.
Calvert .....JOHN H. DRURY, Chaney.
Cecil .....G. F. MARSH, Elkton.
Caroline .....To be appointed.
Charles .....W. R. LINTHICUM, La Plata.
Dorchester .....GILBERT B. PORTER, Cambridge.
Queen Anne.....H. S. KOEHLER, Centerville.
Somerset .....H. S. LIPPINCOTT, Princess Anne.
St. Mary's.....G. F. WATHEN, Loveville.
Talbot .....E. P. WALLS, Easton.
Worcester .....J. F. MONROE, Snow Hill.

LECTURERS, 1914-1915.

SHORT WINTER COURSES.

FARM CROPS.

DR. R. S. HILL, Director, State Department of Farmers' Institutes.
MR. RICHARD VINCENT, JR., White Marsh, Md.
MR. E. I. OSWALD, Chewsville, Md.
MR. W. OSCAR COLLIER, Easton, Md.
MR. N. SCHMITZ, Maryland Agricultural Experiment Station, College Park, Md.
MR. LOWELL RAUDEBAUSH, Cincinnati, Ohio.

DOMESTIC SCIENCE.

MRS. E. P. FOULK, Professor of Home Economics, Ohio State University, Columbus, Ohio.
DR. MARTHA BREWER LYON, Washington, D. C.
DR. CHARLES O. APPLEMAN, Maryland Agricultural Experiment Station, College Park, Md.
MR. REUBEN BRIGHAM, Maryland Agricultural Experiment Station, College Park, Md.
MR. RUDOLPH S. ALLEN, Maryland Agricultural Experiment Station, College Park, Md.

FARM LIVE STOCK AND DAIRY.

MR. RUDOLPH S. ALLEN, Maryland Agricultural Experiment Station, College Park, Md.
MR. G. E. WOLCOTT, United States Department of Agriculture, College Park, Md.
MR. REUBEN BRIGHAM, Maryland Agricultural Experiment Station, College Park, Md.
MR. F. R. MARSHALL, United States Department of Agriculture, Washington, D. C.
MR. T. ROY BROOKS, Emmorton, Md.
DR. CHARLES O. APPLEMAN, Maryland Agricultural Experiment Station, College Park, Md.
MR. J. S. FULTON, JR., Board of Health, Baltimore, Md.
DR. L. B. COOK, United States Department of Agriculture, Washington, D. C.

POULTRY.

MR. ROY H. WAITE, Maryland Agricultural Experiment Station, College Park, Md.
MR. C. A. ROGERS, Bergen, N. Y.
MR. F. S. HOLMES, Maryland Agricultural Experiment Station, College Park, Md.
MR. A. R. LEE, United States Department of Agriculture, Washington, D. C.
DR. A. A. BRIGHAM, Brinklow, Md.
DR. PHILIP B. HADLEY, Chief of the Division of Biology, Rhode Island Experiment Station, Kingston, R. I.
MR. CHARLES T. CORNMAN, Editor, "Poultry Item," Carlisle, Pa.
MR. REUBEN BRIGHAM, Maryland Agricultural Experiment Station, College Park, Md.

HORTICULTURE.

MR. C. P. CLOSE, United States Department of Agriculture, Washington, D. C.
MR. ORLANDO HARRISON, Berlin, Md.
MR. E. P. COHILL, Hancock, Md.
MR. W. F. ALLEN, Salisbury, Md.
MR. F. S. HOLMES, Maryland Agricultural Experiment Station, College Park, Md.
MR. W. R. BALLARD, Maryland Agricultural Experiment Station, College Park, Md.
DR. F. P. VEITCH, United States Department of Agriculture, Washington, D. C.
MR. CHARES B. AGER, Hyattsville, Md.
MR. T. H. WHITE, Maryland Agricultural Experiment Station, College Park, Md.
MR. C. E. TEMPLE, State Horticultural Department, College Park, Md.
MR. S. B. SHAW, State Horticultural Department, College Park, Md.

GOOD ROADS.

MR. W. E. VOORHEES, The Good Roads Machinery Co., Kennett Square, Pa.
MR. J. N. MACKALL, Maryland State Roads Commission, Baltimore, Md.
MR. D. H. WINSLOW, U. S. Office of Public Roads, Washington, D. C.
MR. B. F. HEIDEL, U. S. Office of Public Roads, Washington, D. C.
DR. L. I. HUGHES, U. S. Office of Public Roads, Washington, D. C.
MR. E. H. WROE, Maryland State Roads Commission, Baltimore, Md.
MR. B. P. HARRISON, Maryland State Roads Commission, Baltimore, Md.
MR. H. G. SHIRLEY, Maryland State Roads Commission, Baltimore, Md.
DR. F. W. BESLEY, State Forester of Maryland, Baltimore, Md.
MR. R. H. DIXON, JR., Road Engineer of Dorchester County, Maryland.
MR. S. F. BUTLER, American Association of Cement Manufacturers, Philadelphia, Pa.
MR. C. S. REEVE, U. S. Office of Public Roads, Washington, D. C.
PROF. E. B. McCORMICK, U. S. Office of Public Roads, Washington, D. C.

FARMERS' INSTITUTES.

THE DIRECTOR, RICHARD S. HILL, College Park, Md.
MR. W. OSCAR COLLIER, Easton, Md.
MR. JOHN H. DRURY, Chaney, Md.
MR. WILBERT DORSEY, Annapolis Junction, Md.
MR. JAMES T. WILLIAMS, Preston, Md.
MR. F. M. SOPER, Wyoming, Del.
MR. E. I. OSWALD, Chewsville, Md.
MR. HENRY C. WHITEFORD, Whiteford, Md.
MR. JOHN LYNCH, Ridgely, Md.
MR. W. F. ALLEN, Salisbury, Md.
MR. ORLANDO HARRISON, Berlin, Md.
MR. J. R. HASWELL, Drainage Expert, U. S. Department of Agriculture, Washington, D. C.
MR. LOWELL RAUDEBAUSH, Cincinnati, Ohio.
MEMBERS OF THE FACULTY, Maryland Agricultural College, College Park, Md.
MEMBERS OF THE STAFF, Maryland Agricultural Experiment Station, College Park, Md.

FACULTY COMMITTEES.

(The President is an Ex-officio Member of All Committees).

ALUMNI: Messrs. Buckley, Cory, Byrd, Warthen, Jarrell, Dennis, and Ruffner.

AMUSEMENTS, DANCES, ENTERTAINMENTS, LECTURES, STUDENT SOCIALS: Messrs. Symons, T. H. Taliaferro, Crisp, Broughton, Darrow, Bomberger, Cory, and Aspon.

CATALOGUE: Messrs. T. H. Taliaferro, Spence, Metzger, Broughton and Cory.

COURSES OF STUDY: Messrs. McDonnell, Spence, W. T. L. Taliaferro, Bomberger, Symons, T. H. Taliaferro, and Metzger.

DISCIPLINE: Messrs. Spence, McDonnell, T. H. Taliaferro, Harrison, and Broughton.

LIBRARY: Messrs. Bomberger, W. T. L. Taliaferro, Gwinner, Rose, and Broughton.

PHYSICAL CULTURE AND ATHLETICS: Messrs. Byrd, Richardson, Dapray, Griffith, Bomberger, Broughton, and Cory.

PUBLIC FUNCTIONS: Messrs. Harrison, W. T. L. Taliaferro, Gwinner, Dapray, Anspon, Bomberger, and Richardson.

PUBLICITY: Messrs. Brigham, Richardson, Symons, Metzger, and Ford.*

SANITATION: Messrs. Griffith, McDonnell, W. T. L. Taliaferro, Buckley, and T. H. Taliaferro.

SCHEDULE: Messrs. Creese, McDonnell, Harrison, Cory, and Gwinner.

STUDENT ENROLLMENT RECORDS AND CLASS AND QUARTER ASSIGNMENTS: Messrs. Spence, Harrison, Richardson, Metzger, and T. H. Taliaferro.

STUDENT ORGANIZATIONS, LITERARY SOCIETIES, FRATERNITIES, Y. M. C. A., GLEE CLUB, DRAMATIC ASSOCIATION: Messrs. Richardson, Creese, Darrow, Bruce, and W. T. L. Taliaferro.

STUDENT PUBLICATIONS: Messrs. Richardson, Metzger, Bomberger, Cory, and Ford.*

STUDENT RELATIONS: Messrs. Bomberger, Darrow, Richardson, Symons, and Ruffner.

SUMMER SCHOOL: Messrs. Metzger, Bomberger, Crisp, Beckenstrater, and Darrow.

*Deceased.

CALENDAR.

FIRST TERM.

Tuesday, September 14th, and Wednesday September 15th.—Entrance Examinations.
Thursday, September 16th, 1 P. M.—College Work Begins.
Thursday, November 25th.—Thanksgiving Recess.
Wednesday, December 22nd, 12 M.—First Term Ends.
Wednesday, December 22nd, 12 M., to Tuesday, January 4th, 1 P. M.—Christmas recess.

SECOND TERM.

Tuesday, January 4th, 1 P. M.—Second Term Begins.
Wednesday, January 5th.—Special Winter Courses Begin.
Tuesday, February 1st.—Filing Subjects of Theses.
Saturday, March 18th.—Second Term and Special Winter Courses End.

THIRD TERM.

Monday, March 20th.—Third Term Begins.
Wednesday, April 19th, Noon, to Tuesday, April 25th, 1 P. M.—Easter Recess.
Monday, May 15th.—Submitting of Theses.
Friday, June 9th.—Final Meeting of Trustees.
Sunday, June 11th.—Baccalaureate Sermon.
Monday, June 12th.—Class Day.
Tuesday, June 13th.—Alumni Day.
Wednesday, June 14th, 11 A. M.—Commencement Day Exercises.

1915

JULY

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1916

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MARYLAND AGRICULTURAL COLLEGE.

HISTORY

"An act to establish and endow an agricultural college in the State of Maryland" was passed by the Legislature of the State in 1856, and is found in Chapter 97 of the Laws of Maryland for that year. The scope of this act of incorporation is shown by the preamble, which reads as follows:

> WHEREAS, It has been represented to the Legislature, that certain wise and virtuous citizens are desirous of instituting and establishing in some convenient locality within this State, an Agricultural College and Model Farm, in which the youthful student may especially be instructed in those arts and sciences indispensable to successful agricultural pursuits; and
>
> WHEREAS, It doth appear to this Legislature, that while the wise and learned in the present age hath cultivated with laudable industry, and applied with admirable success the arts and sciences to other pursuits, the most necessary, useful and honorable pursuits of agriculturists have so far been lamentably neglected; and
>
> WHEREAS, It is the province and duty of the Legislature to encourage and aid the philanthropic citizens in their efforts to disseminate useful knowledge by establishing an Agricultural College and Model Farm, which shall, in addition to the usual course of scholastic training, particularly indoctrinate the youth of Maryland, theoretically and practically, in those arts and sciences, which with good manners and morals, shall enable them to subdue the earth and elevate the State to the lofty position its advantages in soil, climate, etc., and the moral and mental capacities of its citizens, entitle it to attain.

This was the first effort in the Western Hemisphere to use scientific investigation for the advancement of the vocation of Agriculture, since at that time no other institution of a similar character existed in the United States. Under the charter thus granted to a party of public-spirited individuals, the original College building was erected, and its doors were opened to students in the fall of 1859.

For three years it was conducted as a private institution. In 1862, the Congress of the United States, recognizing the valuable work in the cause of practical education which such colleges could achieve for the country passed the "Land Grant Act." This Act granted each State and Territory which should claim its benefit a proportionate amount of unclaimed Western lands, in place of scrip, the proceeds from the sale of which should apply under

certain conditions to the "**endowment, support and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life.**" This grant having been formally accepted by the General Assembly of Maryland, and the Maryland Agricultural College being named as the beneficiary of the grant, the College thus became, in part, at least, a State institution. In the Fall of 1914, the College became, wholly, a State institution.

During recent years the College has made a steady growth. This fact is evidenced by the increased number of students availing themselves of its facilities; by the erection of many new buildings—the library and gymnasium building, the chemical laboratory, Morrill Hall, the sanitarium, the engineering building, and Calvert Hall; as well as by the establishment of the Departments of Farmers' Institutes and Extension Work, and the State Departments of Chemistry (Fertilizer, Feed and Agricultural Lime Control), Horticulture, Entomology and Vegetable Pathology. As a consequence of its development under such favorable auspices the institution has become the most important factor in the agricultural and industrial development of the State.

The State Bureau of Forestry co-operates with the College, the Director being, by the terms of his appointment, Lecturer on Forestry at the Agricultural College.

LOCATION AND DESCRIPTION

The Maryland Agricultural College is located in Prince George's county, Maryland, on the line of the Washington Branch of the B. & O. R. R., eight miles from Washington, and thirty-two miles from Baltimore. At least nine trains a day from each city stop at College Station, thus making the place easily accessible from all parts of the State. Telephone connection is made with the Chesapeake and Potomac lines.

The College grounds front on the Baltimore and Washington Boulevard. The suburban town of Hyattsville is two miles to the

south, and Laurel, the largest town in the county, is ten miles to the north on the same road. Access to these towns and to Washington may be had by steam and electric railway. The site of the College is particularly beautiful. The buildings occupy the crest of a commanding hill, which is covered with forest trees, and overlooks the entire surrounding country. In front, extending to the Boulevard, is a broad, rolling campus, the drill ground and athletic field of the students. In the rear are the farm buildings and barn. A quarter of a mile to the northeast are the buildings of the Experiment Station. The College farm contains about three hundred acres, and is devoted to fields, gardens, orchards, vineyard, poultry yards, etc., used for experimental purposes and demonstration work in agriculture and horticulture.

The general appearance of the College grounds is exceedingly attractive. They are tastefully laid off in lawns and terraces which are ornamented with shrubbery and flower beds. The view from the grove and campus cannot be surpassed.

The location of the College is healthful; the sanitary conditions are excellent. No better proof of this can be given than that there has been practically no serious case of illness among the students for many years.

COLLEGE BUILDINGS.

The original College building completed in 1859, and the administration building completed in 1904, and connected with the former by a covered bridge, were completely destroyed by fire on the night of November 29, 1912. A temporary assembly hall, kitchen and dining hall have been erected and are now in use. Living rooms for a part of the students are available in Calvert Hall, the dormitory constructed in 1914, and in several houses on the College campus.

In 1894 the building used as the library was erected. It is well-lighted and commodious.

The Departments of Civil, Electrical and Mechanical Engineering and the Departments of Physics and of Mathematics are located in the two-story brick building erected in 1896, the brick annex, erected in 1904, and the brick addition constructed in 1909. This latter, which consists of a main building four stories in height and

a wing three stories in height, is so arranged as to form with the buildings previously erected a concrete whole. In this group of buildings are found laboratories of various kinds, wood and machine shops, a forge room and foundry, drawing rooms, blue print rooms, instrument rooms, lecture rooms, offices, a library room, lavatories, lockers, etc. The equipment is modern in every respect and the facilities for work in the above named departments have been greatly increased.

The chemical building was completed in 1897, and is now thoroughly equipped. It contains several lecture rooms and laboratories for practical work and the analysis of fertilizers, feeding materials for domestic animals, and agricultural lime. This work is assigned by Acts of the General Assembly to the Professor of Chemistry at this College, who is thereby constituted State Chemist.

Morrill Hall, erected in 1898, provides laboratories, lecture and class rooms, a dark room and storage rooms for the Agricultural and Biological Departments. The extensive insect collections of past and present State Entomologists, and the State Herbarium are housed in this building. The Departments of Entomology and Botany have a small greenhouse attached to Morrill Hall for use as an insectary and propagating house. In addition, several class rooms and offices are used by the Departments of Economics, English, Agricultural Education and Languages.

The Horticultural Building completed this year provides class rooms, propagating shed and offices, opening into a range of nine greenhouses and a conservatory abutting on the south wall of the building. The main building is 200 feet long, and the adjoining greenhouses 50 feet by 20 feet each. This equipment furnishes ample accommodations for laboratory work in horticulture and is comparable to the best in the country.

The College Sanitarium, completed in 1901, is being used, temporarily, as the Administration Building.

GENERAL AIM AND PURPOSE.

The Agricultural College is the State school of science and technology. While seeking, first of all, to perform the functions of an agricultural college, its sphere of work has been widened to

embrace all the sciences akin to agriculture, and all the arts related to mechanical training. To these special and prominent lines of work have been added such branches of study as are necessary for a liberal education, for the development of the intelligent citizen and for general culture. The purpose of this college is to give young men anxious to prepare themselves for the active duties of life such training in the lecture room, laboratory and field as will enable them to take their places in the industrial world well prepared for the fierce competition of the day.

Recognizing that such an education, in order to be of practical advantage to many, must be offered at a cost within the means of all, the expenses for the year to the student have been reduced to the point where his college dues are not in excess of his ordinary daily expenses. It is to be remembered that the College is a State institution, in part supported by the State, in part by the Federal Government through its several endowment Acts, and that it is in no sense a money-making institution, but simply a medium of disbursement by the Government to those upon whom the safety, progress and prosperity of the State so largely depend.

While the College provides, as will hereafter be explained, several distinct courses of instruction, looking to the special training of the student in agriculture, engineering and science, the fact is clearly kept in view that a sound foundation must be laid for each and every course. Successful specialization is only practicable after the student has prepared for it by a thorough training in the essentials. All education must be narrow and one-sided which does not provide for the general culture of the student, and which does not look first to the natural and normal development of the individual. That the aim of the College is to train the student in a specialty without sacrificing his development in general culture is shown in the description of the general working plan given in the next paragraph.

It begins with the student in his first, or Freshman, year with a systematic and carefully adjusted scheme of work, differing but little in the several courses, and looking to his general development in mental strength, range of information and power of expression and thought. At the beginning of his second, or Sophomore, year the differentiation may be said to begin along those lines for which

he shows most natural aptitude. This gradual specialization continues during his third, or Junior, year, until in his last, or Senior, year, his work consists chiefly of a few closely correlated topics, in which he is thus able thoroughly to prepare himself. With the present equipment of the laboratories and work-shops a student is able to become so proficient in his chosen line of work that when he leaves the College a successful career is open to him.

The Agricultural College is, logically, the crowning point of the public school system of Maryland. Its aim in particular is to provide a higher education for the graduates of the county schools. To this end its curriculum is adjusted to meet the preparation of such students. It is this class of young men that the College is specially desirous of reaching. Experience has shown that our most satisfactory students come as graduates from the county schools, and no efforts will be spared to make the transition from the high school to the College a possible one for all those actuated by an earnest desire to complete their education.

DEPARTMENTS OF THE COLLEGE.

AGRICULTURE—
  AGRICULTURAL EDUCATION.
  AGRONOMY.
  ANIMAL HUSBANDRY.
BOTANY AND VEGETABLE PATHOLOGY.
CHEMISTRY AND BACTERIOLOGY.
CIVIL ENGINEERING.
ECONOMICS, POLITICAL SCIENCE AND HISTORY.
ELECTRICAL ENGINEERING AND PHYSICS.
ENGLISH AND PUBLIC SPEAKING.
ENTOMOLOGY AND ZOOLOGY.
HORTICULTURE—
  POMOLOGY.
  VEGETABLE CULTURE.
  LANDSCAPE GARDENING AND FLORICULTURE.
  FORESTRY.
LANGUAGES.
MATHEMATICS.
MECHANICAL ENGINEERING.
MILITARY SCIENCE.
PHYSICAL CULTURE.
SUB-COLLEGIATE INSTRUCTION.
VETERINARY SCIENCE.

The following pages give, under the several departments, the general character of the courses offered by each, and the main features of their equipment.

AGRICULTURAL EDUCATION.

PROFESSOR METZGER.

The work of this Department is designed to meet the demand for men, trained in agricultural and manual arts subjects, to teach in the high schools of the State.

In the arrangement of the courses the needs of the agricultural and manual arts teacher have been kept in mind. The work how-

ever, is open to any who desire an insight into the educational principles and problems of teaching vocational subjects.

The practice teaching is arranged to give the students of this Department experience in conducting class work and laboratory and field exercises. In addition, arrangement is made whereby the student receives both instruction and experience in the teaching and supervision of elementary industrial work in secondary schools.

COURSES OFFERED.

1. Logic. Principles and practice of logic.

Text used: Jevon's Hill's "Logic."

Junior Year—Third Term, 2 theoretical periods per week.

2. Psychology. Principles of psychology. Lectures and textbook.

Text used: Angell's "Psychology."

Junior Year—First Term, 3 theoretical periods per week.

Senior Year—First Term, 4 theoretical periods per week.

3. History of Education. Outline of the historical development of modern education.

Text used: Monroe's "Brief Course in the History of Education."

Junior Year—Second Term, 5 theoretical periods per week.

Senior Year—Second Term, 4 theoretical periods per week.

4. Principles of Education. Study of the principles and methods of modern education.

Text used: Thorndike's "Education."

Junior Year—Third Term, 4 theoretical periods per week.

Senior Year—Third Term, 4 theoretical periods per week.

5. Secondary School Agriculture and Manual Training. The purpose of this course is the preparation of the student for the teaching of agricultural or manual training subjects through a knowledge of the educational aims, and of the principles applying to the choice of subject matter. The course involves a study of the recitation in its parts, the methods of conducting and the function of laboratory, shop, and field exercises, and the correlation of these with other subjects.

Senior Year—First Term, 3 theoretical and 2 practical period per week.

6. Organization and Materials. A course in the organization of courses of study, demonstration projects, and the selection of materials for the work in agriculture and manual training in secondary and elementary schools. This course is designed to acquaint the student with the materials and equipment necessary for the successful teaching of secondary school sciences and arts, scope of work, order of presentation and the sources of supplies and equipment for recitation and laboratory work. The function and the use of school land and of home demonstration work are considered.

Senior Year—Second Term, 3 theoretical and 2 practical period per week.

7. Rural Organization. A course in which the aims, the functions, the methods of organization, and the relation of rural to city institutions are considered.

Senior Year—Third Term, 3 theoretical and 2 practical period per week.

8. Research and Thesis. The subject and lines of work to be arranged with the head of the Department. The purpose of the thesis is to study special problems in agricultural education.

SeniorYear —Third Term, 1 theoretical and 4 practical period per week.

AGRONOMY.

PROFESSOR TALIAFERRO.

MR. BRUCE.

The Department of Agronomy takes up the agricultural work pertaining to the field and its crops. A number of courses are offered. These treat of farm crops, their classification, soil and climatic adaptations, culture and improvement; soils, their physical and chemical properties, methods of treatment for maintenance and increase of productiveness; soil amendments, as manures, fertilizers, cover crops and lime; farm drainage; farm machinery and farm management.

The College farm consists of two hundred and sixty-five acres of land and is operated by the Maryland Agricultural Experiment Station together with an adjoining leased farm.

Students of the College are kept in close touch with the general and experimental work on these farms which offer an unusual variety of soils and crops for observation and study.

Many of the students, who wish to do so, find work at fair wages on the farm and are thereby enabled to pay a part of their expenses as well as to gain valuable experience.

COURSES OFFERED.

20. General Agronomy. The object of this course is to teach the approved methods of modern farm practice in regard to soils and crop production and from them by means of laboratory and field exercises, to deduce logically the scientific facts on which such practice rests. It also prepares the student for the more detailed study of soils and crops provided in the later courses.

Freshman Year—Second Term, 1 theoretical period per week; Third Term, 1 theoretical and 2 practical periods per week.

21. Soils. The study of the physical and chemical conditions of the soils in their relation to profitable agriculture. The soil is the basis of all agriculture, and a knowledge of its properties and functions cannot be too highly emphasized. The study of this important subject is conducted by means of lectures, text-books, laboratory and field work. No State in the Union possesses a greater variety of soils than Maryland, and great attention is paid to the study of soil types in their relation to profitable agriculture.

A well-equipped soils laboratory and the wide variety of soils found on the College farm offer exceptional advantages in the theoretical and practical study of this important subject.

The text-book used is "Soils," by Lyon and Fippin.

Sophomore and Senior Year—First and Second Term, 2 theoretical and 4 practical periods per week.

First Year—Third Term, 3 theoretical and 6 practical periods per week.

22. Fertilizers. Of vital interest to the eastern and southern farmer of the present day is the fertilizing question. Between it and the profit and loss account is a very close connection, and frequently a lack of knowledge of the subject entails upon the farmer both the loss of money paid and of the possible increase of the crop. In this course the subject is developed logically from the needs of the plant and the efficiency of the soil to the selecting of the proper plant foods for each crop under varying conditions of soil and climate. Special attention is given to the home-mixing of fertilizers.

Sophomore and Second Year—Second Term, 2 theoretical and 4 practical periods per week.

23. Farm Crops. A more detailed study of the common farm crops is taken up in this course than in any previous course. Instruction is given principally by lectures and practical work on the farm and in the laboratory.

Sophomore and First Year—Third Term, 2 theoretical and 4 practical periods per week.

24. Crop Production. This course is intended only for those students who are specializing in agronomy. It consists of field and laboratory work in the study of the handling of fall-sown and fall-harvested crops. Great attention is given in this course to a careful note-taking and study of the results obtained in breeding work in corn and other fall maturing crops on the Experiment Station farm.

Junior Year—First Term, 2 theoretical and 4 practical periods per week.

Second Year—First Term, 3 theoretical and 4 practical periods per week; Third Term, 2 theoretical and 2 practical periods per week.

25. Farm Machinery. Lectures and practical work.

Senior and First Year—First Term, 2 theoretical and 4 practical periods per week.

26. Advanced Work in Crop Production and Soils. In this course a detailed study is made of the methods of Crop Production. The work in Soils is designed to familiarize the student with the details of soil management. It includes a study of the effects of the most approved systems of tillage and crop rotations upon

ne physical and chemical composition of the soil and its moisture ontent. The laboratory work consists of special studies on the ype soils of Maryland, soils from the Experiment Station fields, hich have been subjected to various systems of soil management, nd samples of soils from the student's home farm.

Senior Year—First Term, 2 theoretical and 2 practical periods er week; Third Term, 3 theoretical and 4 practical periods per eek.

27. Grain Judging. This course consists of a critical compara- ve study of the cereals and other farm seeds from the standpoint f market grading and fitness for seed purposes. It is designed so familiarize the student with the subject that he may not only andle his own crops to the best advantage, but may also be quali- ed to act as a judge at county fairs, grain shows, etc. Instruction given by means of laboratory practice and lectures.

Senior Year—Second Term, 4 practical periods per week.

Second Year—Second Term, 2 theoretical and 4 practical periods er week.

28. Farm Management. Lectures and practical work.

Senior Year—Third Term, 2 theoretical and 4 practical periods er week.

Second Year—First Term, 2 theoretical and 2 practical periods er week.

29. Thesis and Research. To be arranged for with the head f the Department.

Senior Year—First Term, 1 theoretical and 4 practical periods er week; Second Term, 4 practical periods per week; Third Term, theoretical and 4 practical periods per week.

ANIMAL HUSBANDRY.

PROFESSOR RUFFNER.

The Department of Animal Husbandry stands for all lines of work hich pertain to the judging, selecting, breeding, feeding, devel- pment, care and management of the various breeds and classes of omesticated animals. Good herds of stock are being established at

the Maryland Agricultural Experiment Station which are of use to the student in his studies. In addition to the supply of stock on the farm the proximity of the College to Washington and Baltimore makes it possible for the student to get excellent material for study. The Heurich dairy farm, close by, furnishes an excellent example in dairy farming. It is quite evident that there is but one way to make a young man a proficient judge of live stock, and that is by training the eye. In all of the lecture and laboratory work outlined in the courses the work is demonstrated with living specimens.

New dairy barns are erected at the Experiment Station. These are models of sanitation. A well lighted and heated pavilion for judging live stock is a recent addition to the equipment.

Junior and Senior Students taking this course are sent to farms throughout the State of Maryland, and the eastern section of Virginia to supervise advanced registry tests for the dairy associations. These trips give the students the advantage of observing the most up-to-date dairy farms in the country, in addition to practical experience.

For the past four years a judging team, consisting of three students, has been sent to Chicago to participate in the Student's Contest in Judging Dairy Cattle. Students in any of the agricultural courses are eligible to compete for a place on this team. The selection of students for the team is based upon ability and efficiency in this line of work.

A growing library of herd-books is available to the student of pedigrees. These books give a fund of information concerning heredity, fecundity and other breed characteristics.

COURSES OFFERED.

40. Breeds and Scoring. This course is devoted to the detailed study of the breeds of live stock. The practical work commences with a study of the animal form by the use of the score-card. Special attention is given to the relation of form to function. First, the productive types are firmly fixed in the student's mind; then he takes up more particularly breed characteristics.

Text-books: "Types and Breeds of Farm Animals," by Plumb nd "Judging Live Stock," by Craig.

Freshman and First Year—First Term, 1 theoretical and 4 ractical periods per week.

Junior Year—First Term, 2 theoretical and 4 practical periods er week.

41. Live Stock Management. Lectures are given on the hous- ng, feeding, care and management of dairy cattle, hogs and horses; he housing, feeding, care and management of beef cattle and heep. The practical work consists of application of the principles leveloped in the lectures, and takes up the drawing of barn plans nd other stable conveniences.

Sophomore Year—First Term, 2 theoretical and 4 practical eriods per week.

42. Principles of Breeding. This course takes up the prin- iples of breeding, including selection, heredity, atavism, variation, ecundity, in-and-in breeding, cross-breeding and a historical study f the results.

Text-books: "Principles of Breeding," Davenport, "Breeding Farm Animals," Marshall.

Junior and Second Year—First Term, 3 theoretical periods per veek.

43. Animal Nutrition. This course embraces the principles nd practice of animal feeding. After covering the principles of utrition, it takes up the composition of feeding stuffs, their com- ination into properly balanced rations, and the relation between he sustenance of animals and their products. Students entering his course should have completed courses in organic chemistry nd comparative anatomy and physiology.

Text-books: "Feeds and Feeding," Henry, "Feeding of Ani- nals," Jordan.

Junior Year—Second Term, 4 theoretical and 2 practical periods er week; Third Term, 2 theoretical and 4 practical periods per veek.

Senior Year—First Term, 3 theoretical and 4 practical periods er week; Third Term, 3 theoretical and 2 practical periods per veek.

Second Year—First and Second Term, 2 theoretical periods per week.

44. Stock Judging. Special attention is paid to the judging of groups of animals, similar to county and State fair work.

Junior Year—Third Term, 1 theoretical and 4 practical periods per week.

Second Year—First Term, 4 practical periods per week.

45. Dairying. Lectures, recitations and practical work.

Text-books: Wing's "Milk and Its Products," Russell's "Dairy Bacteriology."

Senior Year—Second Term, 2 theoretical and 4 practical periods per week.

Second Year—Third Term, 2 theoretical and 4 practical periods per week.

46. Profitable Stock Feeding. This course treats of the feeding of animals in a most practical manner. Special attention is given to the feeding of breeding stock and the fattening of animals for market. There is no special requirement to enter this course, as in course 43.

Text-books: "The Management and Feeding of Cattle," by Thomas Shaw, "Profitable Stockfeeding," by Smith.

Second Year—Second Term, 4 practical periods per week.

47. Farm Poultry. This course takes up the methods of housing, natural and artificial incubation and brooding, feeding, breeds and diseases of poultry.

Text-book: "Poultry Craft," by Robinson.

Senior and First Year—Second Term, 2 theoretical periods per week.

48. Research and Thesis. The lines of work and subjects to be investigated are to be arranged with the head of the Department.

The object of this work is to develop independence and originality in the student, and also to give him a taste for personal investigation upon lines which are of particular interest to himself. The results of these investigations are usually incorporated in a thesis.

Senior Year—First Term, 1 theoretical and 4 practical periods

per week; Second Term, 4 practical periods per week; Third Term, 2 theoretical and 4 practical periods per week.

BOTANY AND VEGETABLE PATHOLOGY.

PROFESSOR NORTON.
ASSOCIATE PROFESSOR ROSE.

The courses in botany are intended to give such knowledge of the vegetable kingdom as is a proper element in general culture; to train the student mind in observation, comparison, generalization and other mental processes essential to true scientific methods in any work; and to furnish a basis for practical studies directly connected with agriculture, since plants are the subjects dealt with in the field and garden. In addition to the courses in pure botany, others of special economic trend are given. These are specially for students in the Agricultural and Horticultural Courses, and take up such botanical studies of cultivated plants, plant diseases, etc., as may be useful in practical life to the professional farmer or gardener.

The equipment and means for illustration and demonstration consist of a reference library containing the principal botanical works needed by students, charts and maps, compound and dissecting microscopes, preserved specimens for illustration and a representative collection of Maryland plants; microtome and other instruments together with reagents and apparatus for histological work and physiological experiments; and a culture room, sterilizers, incubators and other facilities for the study of plant diseases.

Advanced students have an opportunity to observe the work being done in the laboratory of Vegetable Pathology and greenhouse of the State Horticultural Department and of the Experiment Station, and, if competent, to assist in the same. Special attention is given to students who wish practice in the treatment of plant diseases, as it is the desire of the Department to encourage young men to engage in this work as a business.

60. Seeds and Weeds. By examination and careful study the student becomes familiar with the ordinary field and garden seeds, and with the weed seeds which are commonly found as adulterants. He is thus enabled to identify these at sight. A study of the common weeds is also pursued.

First Year—First Term, 4 practical periods per week.

61. General Principles. This is an elementary course in the general principles of anatomy, morphology and physiology of the higher plants. The structure and types of seed, root, stem, leaves, flowers and fruit are studied in the laboratory, with a brief consideration of the functions of the different plant organs, a more complete course in plant physiology (64) being given later.

There is also field work, with the manual on the native flora, designed to give a knowledge of the common Maryland plants and their position in the classification of the vegetable kingdom. The ecology of the plants examined in the field is also considered, and includes their relation to soils, water supply, light and other factors in their environment, cross pollination, dissemination of seeds, plant societies, etc. Each student makes a collection of plants from some part of the State.

Bergen and Caldwell's "Practical Botany" is the principal textbook used.

Reference books: Gray's "Field, Forest and Garden Botany," Britton's "Manual," Gray's "New Manual," Britton and Brown's "Illustrated Flora."

Freshman Year—Third Term, 2 theoretical and 4 practical periods per week.

62. Farm Botany. Work similar to that given in 61, with special reference to the agricultural side of botany.

First Year—Third Term, 2 theoretical and 4 practical periods per week.

63. Plant Histology. Laboratory work with the compound microscope, studying the minute structure of the tissues and organs of the various types of plants. Each student prepares a series of

sections for study with the microscope, from which he makes a set of outline drawings.

Steven's "Plant Anatomy" and Chamberlain's "Methods in Plant Histology" are the principal books used.

Sophomore Year—First Term, 1 theoretical and 6 practical periods per week.

64. Plant Physiology. Lectures and experiments on the life processes of plants; absorption and transfer of water and food materials, photosynthesis, respiration, growth, movement and reproduction. Special attention is given to the relation of physiological principles to agriculture.

Text-books: Barnes' "Physiology," Osterhaut's "Experiments with Plants."

Sophomore Year—Second Term, 1 theoretical and 6 practical periods per week; Third Term, 2 theoretical and 4 practical periods per week.

65. Comparative Morphology and Classification. A comparative study of the structure and life history of the principal types of plants from the lowest to the highest, based on microscopic studies in the laboratory.

Text-book: Bergen and Davis' "Principles of Botany," Part II. The outline of classification of Engler's "Syllabus" is followed in general.

Junior Year—First Term, 6 practical periods per week.

66. Economic Plants. Lectures are given on the names, classification, nativity and uses of the useful and detrimental plants of the world, and field and laboratory studies are made of the common cultivated plants. This is done with a view to enabling the student of horticulture or agriculture to know the scientific names and relationship of the plants with which he comes in contact in his chosen work.

Reference books: Bailey's Gray's "Field, Forest and Garden Botany," Bailey's "Encyclopedia of Horticulture," etc.

Junior Year—Second Term, 2 theoretical and 4 practical periods per week.

67. Seed Analysis. Practical work in testing seeds for purity and viability, including all methods used in the State Seed Laboratory located at the Experiment Station.

Junior Year—Second Term, 1 theoretical and 4 practical periods per week.

68. Microscopy of Foods and Drugs. The identification of various food and drug products and their adulterants by means of the microscope.

Junior Year—Third Term, 2 theoretical and 4 practical periods per week.

69. Plant Diseases. A practical study of diseases of plants to enable the student to know them and to understand the methods of control.

Second Year—Third Term, 2 theoretical and 2 practical periods per week.

70. Vegetable Pathology. This includes microscopic and macroscopic examinations of parasitic fungi in their relations to diseases in higher plants, studies of the nature of disease in plants, physiological diseases, etc., together with the best known means for the prevention and control of diseases. Lectures, reference work, laboratory work and experiments in infection and treatment constitute the course.

Junior Year—Third Term, 2 theoretical and 4 practical periods per week.

71. Vegetable Pathology. This course is an extension of course 70 and is required of Biological students specializing in botany.

Junior Year—Third Term, 1 theoretical and 4 practical periods per week.

72. Elective Courses for students of the Biological Course and for post-graduate students are offered in Methods in Plant Pathology, Botanical Microchemistry, Histology of Trees, Weeds and Poisonous Plants, Seed Testing, Taxonomy or advanced work in any of the undergraduate courses before mentioned.

Senior Year—7 theoretical and 12 practical periods per week.

73. Research. Students electing botany as a major in the Senior Year devote a portion of their time to the completion of an

original study of some botanical subject upon which they prepare the graduation thesis. The time scheduled is a minimum.

Senior Year—1 theoretical and 4 practical periods per week.

CHEMISTRY AND BACTERIOLOGY.

PROFESSOR MCDONNELL.

PROFESSOR BROUGHTON.

MR. DENNIS.

MR. WHITE.

This Department is charged with two distinct classes of work. (1) The State fertilizer, feed and lime inspection, and (2) the instruction of students. The State work necessitates the publication of the "Quarterly" bulletin, which is usually made up of the results of the analysis of fertilizers, feeding stuffs, or agricultural lime, and is sent free of charge to all Maryland farmers who apply. Students do no part of the State work, the assistants being college graduates. However, this work serves as a valuable object lesson to the advanced students.

The Chemical Laboratory Building is devoted entirely to chemistry. Not including basement, it is two stories high. On the first floor are the laboratories for the State fertilizer, feed and lime control work, office, lecture room and balance room. On the second floor are three laboratories for the use of students; a students' balance room with first-class chemical and assay balances, polariscope, refractometers, spectroscopes, etc., and a supply room. The assay furnaces are in the basement. Each student is provided with a working desk, lockers, reagents and apparatus. Additional apparatus and materials are provided from the supply room, as needed.

The Department is provided with a small, but well-selected, library of standard reference books on chemistry, to which additions are made from time to time.

Instruction in chemistry is begun in the Second Term of the Freshman Year, three to four periods per week being devoted to lectures and recitations, and two to four periods to practical work in the laboratory by the student, under the supervision of the

instructor. In this way the student comes in direct contact with the substances studied, having at hand ample facilities for learning their properties. Special attention is given to the elements and compounds of practical and economic importance, such as the air, water and soil, the elements entering into the composition of plants and animals, the useful metals, etc. This course is intended to give the student that practical and theoretical knowledge of elementary chemistry which is essential in the education of every man, no matter what his vocation. It also serves as a foundation for advanced work in chemistry, if such a course is chosen.

Advanced work in chemistry begins with the Sophomore Year, Second Term, if the Course in Chemistry is selected, and the larger part of the student's time is devoted to some branch of theoretical or practical chemistry during the rest of his course, as outlined elsewhere.

CHEMISTRY.

COURSES OFFERED.

80. Farm Chemistry. This course consists of an elementary course in general chemistry, with special reference to the chemistry of plants, animals, fertilizers, etc., and is offered to students taking the two-year courses in Agriculture and Horticulture.

Text-book: Kahlenberg and Hart's "Chemistry in Its Relations to Daily Life."

Second Year—2 theoretical and 2 practical periods per week.

81. General Chemistry. Recitations, lectures and practical work in the laboratory, where the student performs the experiments under the direction of instructors. Qualitative analysis is started in this course.

Text-book: Remsen's "Introduction to the Study of Chemistry."

Freshman Year—Second and Third Term, 4 theoretical and 2 practical periods per week.

Sophomore Year—First Term, 3 theoretical and 4 practical periods per week.

82. Qualitative Analysis. Lectures and laboratory work.

Text-book: Hind's "Qualitative Analysis."

Sophomore Year—Second Term, 8 practical periods per week; Third Term, 1 theoretical and 8 practical periods per week.

83. Qualitative Analysis. For students taking the Agricultural, Horticultural, Biological and General Science Courses.

Text-book: Hind's "Qualitative Analysis."

Sophomore Year—Second Term, 1 theoretical and 8 practical periods per week.

84. Quantitative Analysis. For students taking the Agricultural, and General Science Courses. A brief course illustrating some of the general principles in the quantitative study of chemistry. In the latter part of the course the agricultural students are given the option of the analysis of fertilizers, feeds, butter, milk, etc.

Text-book: Lincoln and Walton's "Quantitative Analysis."

Sophomore Year—Third Term, 1 conference and 8 practical periods per week.

85. Theoretical Chemistry. A discussion of the fundamental laws and theories of modern chemistry.

Text-books: Remsen's "Theoretical Chemistry," and Talbot and Blanchard's "Electrolytic Dissociation Theory."

Sophomore Year—Third Term, 2 theoretical periods per week.

86. Mineralogy. This is a course in determinative mineralogy. The more important minerals are identified by their more characteristic physical and chemical properties, the blow-pipe being an important aid.

Text-book: Brush and Penfield's "Determinative Mineralogy and Blowpipe Analysis."

Sophomore Year—Third Term, 1 theoretical and 4 practical periods per week.

87. Geology. Attention is given chiefly to physical geology. The latter half of the course is devoted to the geology of Maryland, specially as affecting the character of the soils, mineral wealth and other economic conditions of the State. Instruction is given by means of text-book work, lectures and field excursions.

Junior Year—First Term, 2 theoretical and 2 practical periods per week; Second Term, 2 theoretical periods per week.

88. Organic Chemistry. For students taking the Agricultural, Biological and General Science Courses. Recitations and lectures.

Text-book: Remsen's "Organic Chemistry."

Junior Year—First Term, 4 theoretical periods per week.

89. Stoichiometry. Problems relating to analytical and applied chemistry.

Text-book: Miller's "Analytical Calculations."

Junior Year—1 theoretical period per week.

90. Quantitative Analysis. Consisting of Gravimetric, Volumetric, and Colorimetric Determinations. Determinations are selected, so as to illustrate the general principles of the work. The volumetric work consists of acidimetry, alkalimetry, iodometry, oxidation and reduction. Neatness and accuracy are insisted upon in the laboratory, and in the conference periods the chemistry and mathematics of each determination are thoroughly discussed.

Text-books: Olsen's "Quantitative Analysis," Sutton's "Volumetric Analysis."

Junior Year—First Term, 1 theoretical and 12 practical periods per week; Second Term, 1 theoretical and 10 practical periods per week; Third Term, 1 theoretical and 8 practical periods per week.

91. Organic Chemistry. The chemistry of carbon compounds.

Text-books: Perkin & Kipin's "Laboratory Manual" and Gattermann's "Practical Methods of Organic Chemistry," translated by Schober.

Junior Year—First Term, 3 theoretical periods per week; Second and Third Term, 3 theoretical and 4 practical periods per week.

92. Agricultural Chemistry. The chemistry of soils, fertilizers, plant life, animal life, etc.

Text-book: Stoddart's "Chemistry of Agriculture."

Senior Year—First Term, 4 theoretical periods per week.

93. Agricultural and Biological Chemical Analysis. This is a thorough course in the analysis of fertilizers and fertilizing materials, feeding stuffs, butter, milk, sugar, starch, etc.

Senior Year—First Term, 20 practical periods per week.

94. Physiological Chemistry. Recitations and lectures.

Text-book: Hawk's "Physiological Chemistry."

Senior Year—First Term, 4 theoretical and 4 practical periods per week.

95. Physical Chemistry. In this course the student becomes familiar with the advanced theories of chemistry, and some of the methods employed by research chemists. The laboratory work consists of the determination of the boiling and melting point, lowering of the freezing point by substances in solution, determination of vapor densities and combustion methods for determination of carbon, hydrogen and nitrogen.

Text-book: Jones' "Physical Chemistry."

Senior Year—Second Term, 5 theoretical and 16 practical periods per week.

96. Inorganic Chemistry. An advanced course covering more in detail the subject matter set forth in the Inorganic Chemistry Course offered in the Freshman Year.

Senior Year—Second and Third Term, 3 theoretical periods per week.

97. Industrial Chemistry. The study of the practical methods employed in the various chemical industries. Visits are made to ice, fermentation, and gas plants; also to fertilizer, glass, iron and steel works; etc.

Text-book: Thorp's "Outlines of Industrial Chemistry."

Senior Year—Third Term, 5 theoretical periods per week.

98. Advanced Agricultural Analysis.

Text-book: "Methods of Analysis of the Association of Official Agricultural Chemists."

Senior Year—Third Term, 12 practical periods per week.

99. Thesis. Investigation along agricultural chemical lines to be embodied in a graduating thesis. In addition to the time scheduled, a part of the work done under courses 94, 95 and 97 will be included.

Senior Year—Third Term, 4 practical periods per week.

BACTERIOLOGY.

COURSES OFFERED.

100. ELEMENTARY BACTERIOLOGY. The morphology of organisms which occur in milk, water and soils. Lectures on farm sanitation.

Second Year—Second Term, 2 practical periods per week.

101. BACTERIOLOGY. Bacteriological technic. Preparation and sterilization of media. A morphological and biological study of the bacteria which play important roles in agriculture and commerce. Lectures on the bacteria of the nitrogen cycle, soils, milk and water. A study of immunity and infection.

Text-book: Jordan's "General Bacteriology."

Junior Year—Second and Third Term, 8 practical periods per week.

102. BACTERIOLOGY. For chemists only. A complete study of the morphological and biological characteristics of the most common agricultural organisms. Preparation of media, stains, etc. with special emphasis upon practical methods of sterilization. Problems of sanitation and public hygiene are given considerable study. A bacteriological examination is made of water, milk, sewage, disinfectants, food and soils. Lectures on facts and problems of immunity and infection.

Text-book: Hiss and Zimser's "Text-Book of Bacteriology."

Senior Year—Second and Third Term, 8 practical periods per week.

CIVIL ENGINEERING.

PROFESSOR TALIAFERRO.

MR. SPRINGER.

The subjects pertaining to civil engineering are arranged with the object of emphasizing the fundamental principles through lectures and recitations in the class-room, supplemented by practical exercises in the field, drafting room and laboratory. Self-reliance being an essential factor in the success of an engineer, the student is encouraged in every way to develop this habit.

EQUIPMENT. In addition to minor engineering instruments, etc., the Department is at present equipped with three compasses, four transits and four levels.

The experimental laboratory contains a thousand pound Riehle cement testing machine and a hundred thousand pound Riehle machine for making tensile and other tests of the various kinds of materials. A description of this latter machine will be found on page 70, it having been purchased for the use of the Civil and Mechanical Engineering Departments. A description of the drafting and blue print rooms used by the Civil Engineering Department will also be found on page 71.

Some hydraulic apparatus of a character suited to the needs of the Department has been installed and other apparatus will be purchased as the funds permit.

TOURS OF INSPECTION—During the session members of the Senior and Junior classes, accompanied by an instructor, take trips for the purpose of making an examination of the different types of modern engineering construction.

COURSES OFFERED.

The subjects outlined, with one exception, constitute a portion of the curriculum of students in the Civil Engineering Course.

120. GENERAL ENGINEERING DRAWING. Isometric and cabinet projections. Perspective. Water coloring. Paper stretching. Blue printing. Ornamental lettering, round writing and title work. Floor plans, elevations and architectural details. Mapping contours and profiling. Conventional signs.

Freshman Year—First Term, 4 practical periods per week.

Junior Year—First and Second Term, 6 practical periods per week; Third Term, 4 practical periods per week.

121. SURVEYING. This course includes the use and adjustment of engineering instruments, the methods of land surveying, the plotting and computing of areas, dividing of land, the theory of the stadia, true meridian lines, leveling, topographical surveying, railroad curves and cross sectioning.

Texts: Raymond's "Plane Surveying," Hosmer and Breed's "The Principles and Practice of Surveying," and Pence & Ketchum's "Field Manual."

Freshman Year—Second Term, 2 theoretical periods per week; Third Term, 4 practical periods per week.

Sophomore Year—First Term, 4 practical periods per week; Second Term, 4 theoretical periods per week; Third Term, 2 theoretical and 4 practical periods per week.

Junior Year—First Term, 2 theoretical and 4 practical periods per week.

122. MECHANICS. A study of statics, dealing with the composition and resolution of forces, moments, couples, machines and laws of friction; and of dynamics, dealing with velocity, acceleration, laws of motion, work, energy and applications to problems.

Junior Year—First Term, 4 theoretical periods per week.

123. RAILWAY ENGINEERING. A study is made of preliminary and location surveys, cross sectioning, calculation of quantities, etc.

Text: Allen's "Railroad Curves and Earthwork."

Junior Year—Second and Third Term, 3 theoretical periods per week.

124. BRIDGE AND STRUCTURAL DESIGN. This course includes the complete design and detailing of a steel roof truss and a plate girder; the detailing from standard commercial drawing sheets of floor beams, girders and columns; and the complete design of a bridge truss of either the Warren or Pratt type. The stresses are determined by both analytical and graphic methods.

Texts: Merriman and Jacoby's "Stresses," Cooper's "Bridge Specifications," "Cambria Hand Book," Thompson's "Bridge and Structural Design," Merriman and Jacoby's "Bridge Design."

Junior Year—Second and Third Term, 2 theoretical and 4 practical periods per week.

125. MECHANICS OF MATERIALS. This course treats of the elasticity and resistance of materials of construction, and the mechanics of beams, columns and shafts.

Text: Merriman's "Mechanics of Materials."

Junior Year—Second Term, 3 theoretical periods per week; Third Term, 5 theoretical periods per week.

126. SURVEYING. This course is intended, primarily, to meet the needs of students in Agriculture, Horticulture, and Engineering Education. It includes the use of the compass, transit and level

one or more methods of land surveying, the plotting and computing of areas, leveling and topographical surveying.

Text: To be selected.

Junior Year—Third Term, 2 theoretical and 4 practical periods per week.

127. Practical Problems. The necessity for practical work on the part of those desiring to enter upon engineering as a profession is obvious. To meet this condition a number of hours have been scheduled for field and laboratory work in practical problems relating to engineering. The laboratory work includes the testing of cement and other materials of construction, various hydraulic experiments, the operation of engines, etc. For students in Agriculture the problems relate for the most part to drainage, particularly tile drainage. The scheduled hours constitute a minimum, the student being encouraged to give as much more of his time as is possible to problems of this character.

Junior Year—Third Term, 8 practical periods per week.

Senior Year—First Term, 12 practical periods per week; Second and Third Term, 4 practical periods per week.

128. Concrete. A study of cement, concrete, and reinforced concrete construction.

Text: Hool's "Reinforced Concrete Construction."

Senior Year—First Term, 4 theoretical periods per week.

129. Hydraulics. The principles of hydraulics, flow through pipes, water supply, etc., are discussed in this course.

Text: Lea's "Hydraulics."

Senior Year—First Term, 3 theoretical periods per week; Second Term, 5 theoretical periods per week.

130. Estimates of Cost. Lectures are given on the methods of estimating cost and these are supplemented by problems of a practical nature.

Senior Year—Second Term, 1 theoretical and 4 practical periods per week; Third Term, 1 theoretical and 6 practical periods per week.

131. Highway Engineering. This course includes the location, construction and maintenance of roads.

Text: Blanchard and Drowne's "Highway Engineering."

Senior Year—Third Term, 5 theoretical periods per week.

132. Farm Water Systems. An elementary course dealing with the water supply and the disposal of sewage on the farm.

First Year—Second Term, 1 theoretical and 2 practical periods per week.

133. Thesis. This involves a study of some selected problem in engineering.

Senior Year—Second Term, 4 practical periods per week; Third Term, 8 practical periods per week.

ECONOMICS, POLITICAL SCIENCE AND HISTORY.

PROFESSOR BOMBERGER.

The courses in this Department are specially designed to prepare young men for the active duties of citizenship. The first year of the Collegiate work is devoted to the study of modern history, which is followed by the principles of civil government, constitutional history, political economy (with especial reference to current, social, rural and industrial problems), and, finally, the elements of business and international law.

ECONOMICS AND POLITICAL SCIENCE.

COURSES OFFERED.

140. Civil Government. Study of the history and development of the Constitution of the United States.

Text used: Beard's "American Government and Politics."

Junior Year—First and Second Term, 3 theoretical periods per week.

141. Business Law. Principles of law as practically applied in everyday life and business.

Text used: Huffcut's "Elements of Business Law."

Junior Year—Third Term, 3 theoretical periods per week.

142. Business Law. A course for the students in the two-year Agricultural and Horticultural Courses on the principles of law as practically applied in everyday life and business.

Text used: 'Hamilton's "Practical Law."

Second Year—Second Term, 3 theoretical periods per week.

143. Political Economy. Principles of political economy and industrial development of the United States; rural economics; social science; and current problems.

Text used: Seager's "Principles of Economics."

Senior Year—4 theoretical periods per week.

144. Comparative Government. Study of the governments of the leading nations of Europe. Elective.

Text used: Ogg's "Governments of Europe."

Senior Year—First Term, 4 theoretical periods per week.

145. Municipal Governments. Study of typical modern municipal governments of the United States and Europe. Elective.

Senior Year—Second Term, 4 theoretical periods per week.

146. International Law. Elements of international law. Elective.

Text used: Davis' "Elements of International Law."

Senior Year—Third Term, 4 theoretical periods per week.

147. Rural Economics. Special study of rural economic problems. Elective.

Senior Year—4 theoretical periods per week.

HISTORY.

COURSES OFFERED.

160. General History. Outlines of General History.

Text used: Myer's "General History."

Sub-Freshman Year—3 theoretical periods per week.

161. Modern European History. From the treaty of Westphalia to the present time.

Text used: Robinson and Beard's "Development of Modern Europe.'

Freshman Year—3 theoretical periods per week.

162. American History. Political and economic history of the United States with special reference to the nineteenth century.

Sophomore Year—First and Second Term, 4 theoretical periods per week; Third Term, 3 theoretical periods per week.

163. Advanced History. Selected Topics. Elective.

Junior Year—3 theoretical periods per week.

ELECTRICAL ENGINEERING AND PHYSICS.

PROFESSOR CREESE.

MR. KAH.

ELECTRICAL ENGINEERING.

The work of the Electrical Engineering Course is so arranged as to give the student a thorough understanding of the fundamental principles of the various branches of electrical engineering, and at the same time to teach him to apply these principles to the practical problems with which the engineer has to deal. This purpose is carried out by means of lectures and recitations in the class-room, supplemented by practical work in the laboratories and drawing room.

Equipment. The Electrical Engineering Laboratories are located in the east wing of the new engineering building. The rooms on the first floor are used for lectures, recitations and experimental demonstrations by the instructor; a room on the second floor is equipped with apparatus for experimental work in telephone engineering; and the basement contains the dynamo room and the electrical engineering testing room.

The electrical engineering testing room is fitted up with such appliances as are used to the best advantage in engineering practice. Special effort has been made to purchase only the best instruments, as the use of poorer grades influences the student unfavorably. With poor instruments he cannot be taught to do satisfactory work and he becomes careless in the handling of them.

Among other things the following apparatus has been purchased for the testing laboratory:

A Leeds and Northrup potentiometer and Weston standard voltmeter and ammeter for calibrating the various measuring instruments used in the laboratory. A Sharp-Millar portable photometer and a Queen & Co. standard photometer for measuring the candle-power of lamps and for determination of illumination intensities. A large number of portable ammeters, voltmeters, and indicating wattmeters for direct and alternating current measurements; standard curve drawing voltmeter and ammeter; electrostatic voltmeter; frequency meters; silver and copper voltameters; Siemen's type electrodynamometer; watthourmeters, both direct and alternating current. A Leeds and Northrup standard portable testing set; heating devices; condensers; tachometers; multiple circuit ammeter and voltmeter switches. D'Arsonval galvanometers; standard resistance boxes and bridges, including a very accurate decade resistance box and a decade resistance and Wheatstone bridge; double and single contact keys, condenser keys, etc.

The lamps used for experimental purposes include direct and alternating current multiple carbon arc, metallic arc, mercury vapor and nernst lamps.

A Curtis steam turbine, direct connected to a 35-kilowatt compound generator, has been installed for testing purposes. This may be used in connection with the College lighting plant when needed, and will be used for light and power service in the engineering building.

The laboratory is so wired that connection may be made readily with any part of the College lighting plant, with the turbo-generator or with any of the apparatus in the dynamo room.

The apparatus in the dynamo room includes the following: A 10-kilowatt rotary converter of the latest type with speed limit and end play devices. A 5 horse-power variable speed commutating pole motor. A 7.5 kilowatt, 60 cycle, 220 volt alternator designed to operate either as a polyphase generator, synchronous motor, frequency changer, constant speed induction motor, or variable speed induction motor; the following parts are supplied with the set to make possible its operation in any of the above named ways;—a stationary armature for use either as an alternating current generator or as an induction motor field; a revolving field; a squirrel cage induc-

tion motor rotor with starting compensator having self-contained switches; an induction motor rotor with internal starting resistance; and an induction motor rotor with 3 phase collector rings, external resistance, and controller. A 2 kilowatt booster set, consisting of a series motor and shunt generator with armatures mounted on the same shaft. A 5 horse-power compound direct current motor and a 1.5 horse-power shunt motor fully enclosed. A 7.5 kilowatt, 120 volt, 3 phase self-excited generator direct connected to a 115 volt compound direct current motor. A motor-generator set consisting of a 3.6 horse-power shunt motor direct connected to a 2 kilowatt compound generator. A 3 horse-power, 3 phase induction motor. A 0.5 kilowatt shunt generator belt connected to a 0.5 horse-power variable speed shunt motor. A 0.5 kilowatt series generator and a 0.25 horse-power, 60 cycle, single phase, induction motor. Two 2 kilowatt transformers to transform power from 110 or 220 volts to 1100 or 2200 volts. Various types of starting rheostats with automatic overload and no voltage release; field rheostats.

The main switchboards, consisting of two blue Vermont marble panels on pipe supports, are used to mount the necessary circuit breaker, rheostats, switches, etc., to control the generators and motors as well as the various circuits in the dynamo room and testing laboratory. Wire and water rheostats are arranged for load and regulation. Portable lamp-boards are so arranged that they may receive, at the proper voltage, from 0.04 to 100 amperes current. Portable ammeter, voltmeter and wattmeter switchboards have been constructed for use in machine tests. In addition to the special electrical engineering equipment, the College lighting plant will be used for illustrative and experimental purposes. This plant contains, together with other apparatus useful in teaching electrical engineering, two Bullock generators of 40 kilowatts total capacity, and a switchboard equipped with a number of Weston ammeters, voltmeters and circuit breakers, and various types of rheostats.

An 8-inch Waltham bench lathe, with all the necessary attachments, has been installed in the dynamo room for the use of students in practical thesis work, and for making small articles, such as binding posts, connectors, etc., for use in the laboratories.

The telephone laboratory is equipped with two demonstration sets which were made by the Western Electric Co.

The magneto set consists of an oak panel upon which is mounted the following apparatus: Two line circuits with combined jacks and signals; double wound supervisory drops; complete cord circuits including ringing and listening keys, operator's telephone set, magneto generator, etc. On one line circuit is connected a wall type subscriber's set, and on the other, a desk set.

The common battery set consists of an oak panel carrying the following equipment: Two line circuits with lamp signals; complete cord circuits, including ringing and listening keys, operator's telephone set, magneto generator, split repeating coils, condensers, retardation coil, supervisory lamp, etc. On one of the line circuits is connected a wall type subscriber's set, and on the other a desk set.

Both panels have all the wiring exposed to enable the student to make a complete study of these two principal types of telephone exchanges.

COURSES OFFERED.

The subjects outlined constitute the work in electrical engineering.

180. ELEMENTARY ELECTRICITY. This subject includes static electricity, dealing with the phenomena of electricity in its potential form, and the conception of electric potential, quantity, capacity, etc.; kinetic electricity, including the study of the fundamental laws and units, as Ohm's Law, Joules' Law, units of current, electromotive force, resistance, etc.; theory of magnetism, with its phenomena and forces; and electro-magnetism, which is the foundation for dynamo electric machine design and construction.

Text: Nichols and Franklin's "Electricity and Magnetism."

Sophomore Year—Second and Third Term, 3 theoretical and 2 practical periods per week.

Junior Year—First Term, 1 theoretical and 4 practical periods per week.

181. ELEMENTARY ELECTRICITY AND MAGNETISM. This subject is given to enable the student to gain a general knowledge of the applications of electricity to commercial work, and deals

very little with the mathematical theories of the various laws and principles. The subject includes a study of the methods of generating, distributing and utilizing electrical energy for practical purposes, and is intended to make the student familiar with modern electrical apparatus and machinery.

Text: Jacksons' "Elementary Electricity and Magnetism."

Sophomore Year—Third Term, 2 theoretical periods per week.

182. Dynamos and Motors. This subject offers a short general course in direct and alternating currents. The study of various types of measuring instruments is followed by a general study of the operating characteristics of direct current generators and motors. The fundamental problems in single and polyphase circuits are taken up in detail; and finally a rather complete study is made of alternating current generators and motors, transformers and switchboard appliances.

Text: Franklin and Esty's "Dynamos and Motors."

Junior Year—First Term, 3 theoretical periods per week; Second Term, 4 theoretical periods per week.

183. Electro-Magnetism and Construction of Dynamos. Beginning with the Junior Year and extending throughout the course, the principles involved in the construction and operation of both direct and alternating current dynamos and motors are taught. In teaching this subject, special care is exercised that the mathematical and graphical developments shall be concise and logical. The direct current machine is first examined, and this results in a discussion of the different forms of armatures, their windings, cores, commutators, etc.; the various fields; the methods of arranging the windings for different purposes; the shape and material of the magnetic circuits; the bearings, shafts, and bed-plates; the methods of insulation; a full description of the materials of construction; the selection of types suited to the performance of specific duties; and the proper method for installing and operating. The characteristic curves and efficiencies of the different types are also illustrated at some length.

Text: Franklin and Esty's "Dynamo Electric Machinery."

Junior Year—First and Third Term, 3 theoretical periods per week; Second Term, 4 theoretical periods per week.

184. Electrical Engineering Laboratory. The study of direct current instruments. The measurements of resistance, current, and electromotive force; the use of the Wheatstone Bridge and galvanometers; loop and capacity tests of cables; calibration of instruments; study of direct current machines; testing of arc lamps; photometry; the operation of machinery and determination of the characteristic curves and efficiencies of machines.

Junior Year—First and Third Terms, 6 practical periods per week; Second Term, 8 practical periods per week.

185. Electrical Engineering Laboratory. This elementary course in testing includes the methods of measuring resistance, current and electromotive force; elementary photometry; and methods of making up connections on various types of machines.

Junior Year—First and Second Terms, 4 practical periods per week.

186. Primary and Secondary Batteries. The theories involved in the primary cell are developed and attention is directed to the various measurements and calculations pertaining to the subject. A study is made of the construction and use of the latest types of commercial cells.

Following the preliminary work on the primary cell, the study of the lead storage battery is taken up in detail. The work includes the general theory, the mechanical construction and the commercial use of the various types of cells, together with the chemical and electrical actions encountered. In connection with the storage cell a study is made of the construction and use of the different forms of the auxiliary apparatus, such as end-cell switches, boosters, etc.

Text: Lyndon's "Storage Battery Engineering."

Junior Year—Third Term, 2 theoretical periods per week.

187. Electric Machine Design. Practical calculation of dynamos, including detail calculations of field cores, armature windings, frames, commutator, armature core and collecting devices.

Junior Year—Third Term, 6 practical periods per week.

Senior Year—First Term, 6 practical periods per week.

188. Alternating Currents and Alternating Current Machinery. A complete study is made of the fundamental pheno-

mena and theories dealing with the effects of alternating currents, both single-phase and poly-phase. Included in this course there are a large number of problems, both analytical and graphical, which are specially valuable for giving a clear appreciation of the effects of self-inductance, mutual-inductance, and capacity in single-phase and poly-phase alternating current circuits.

The theory, construction and practical applications of single-phase and poly-phase alternating current machinery, which includes generators, synchronous, induction and repulsion motors, rotary convertors, transformers, regulators, etc., are taken in detail.

The fundamental principles of the machinery are developed in the class-room and applied concurrently in the laboratory and designing room with special reference to their practical utilization.

Texts: Franklin and Esty's "Alternating Currents," McAllister's "Alternating Current Motors," and Karapetoff's "Electric Circuit."

Senior Year—First and Third Term, 5 theoretical periods per week; Second Term, 3 theoretical periods per week.

189. Electrical Engineering Laboratory. The determination of inductance, impedance, condensance, etc.; measurement of power in alternating current circuits; regulation and efficiency tests of alternators and transformers; parallel operation of alternators; phase characteristics, power factor, etc., of synchronous motors; poly-phase transformation; mesh and star connections of transformers; tests of induction and synchronous motors.

Senior Year—First and Second Term, 8 practical periods per week; Third Term, 6 practical periods per week.

190. Electric Lighting and Power Plants. This work begins with the study of the different systems of distribution used in arc and incandescent lighting and the discussion of the advantages and disadvantages of each from both financial and engineering standpoints. Attention is given to the best methods of obtaining good regulation, as upon this satisfactory lighting service depends. The proper arrangement and wiring of switchboards and the instruments which they contain, as well as the latest methods of protection from lightning, are treated in detail.

The student is made familiar with the manufacture and characteristics of the incandescent arc and many new forms of electric

lamps; the selection of lamps for specific commercial duties; the principles underlying correct interior and exterior illumination; the manufacture of cables for underground work; and the materials used in overhead and conduit systems of distribution.

The proper arrangement, the type and the size of boilers, engines and dynamos in a central station for lighting and power purposes, are obtained by the study of typical plants in this country and abroad. Many problems involving the calculation of the wire and materials needed for the various system of distribution are given. These problems require for their solution a knowledge of the rules of the Underwriters' Association.

Text: Franklin's "Electric Lighting."

Senior Year—First Term, 3 theoretical periods per week.

191. Electric Power Plants and Transmission. A study of the principles underlying the lay-out of power-house and sub-station machinery and circuits for high tension transmission and distribution systems, including the determination of the most economical size of conductors for such systems. The course includes numerous original and practical problems illustrating the principles.

Senior Year—Second Term, 3 theoretical periods per week.

192. Telephones and Telegraphs. This subject deals with the applications of electricity to telephony and telegraphy, with the details and construction of the instruments, switchboards and line work. In this course are included a study of telephone receivers and transmitters; the multiple switchboard; common battery circuits; manual and automatic exchanges; traffic regulation; intercommunicating systems; line construction; the effects of self-inductance, capacity and other disturbing influences; location of faults; simplex, duplex and quadruplex telegraphy; wireless telegraphy; and simultaneous telegraphy.

Text: Miller's "American Telephone Practice."

Senior Year—Second and Third Term, 2 theoretical and 2 practical periods per week.

193. Electric Machine Design. This work includes the design of reactance coils, transformers, induction motors, alternator armatures, field windings and frames, and special problems in the transmission of power.

Senior Year—Third Term, 1 theoretical and 6 practical periods per week.

194. Electric Railway Engineering. The student is made thoroughly familiar with the following topics relating to electric railway work; the power, capacity, arrangement and methods of installation of the engines and boilers; the type, method of control and disposition of the generators in the dynamo room; the proper arrangement of the switchboards and the instruments to be used; the line work, including the various trolley and conduit constructions; the method of laying the track, with the weight and bonding of the rails; the motor equipment and car wiring; the type, power and control of the motors and the requirements for special conditions; the applications of the storage battery; the cost of installation and operation of the power plant; the management of the plant; and the modifications required for high speed electric traction.

Text: Sheldon and Hausman's "Electric Traction and Transmission Engineering."

Senior Year—Third Term, 3 theoretical periods per week.

195. Thesis. During the Senior Year each student is required to prepare a graduation thesis. In the preparation of the thesis the student is given the opportunity to apply his training to original research.

Senior Year—Second and Third Term, 4 practical periods per week.

PHYSICS.

The physical lecture room and laboratory are located in the new engineering building, in rooms excellently adapted to the purpose. The Department is well supplied with apparatus for lecture room demonstrations and for students' individual laboratory work, and new pieces of apparatus are added to the equipment each year.

COURSES OFFERED.

200. Elementary Physics. The course consists of lectures, recitations and experimental demonstrations by the instructor on mechanics, hydrostatics, sound, heat, light, electricity and mag-

netism. The student is required to work a number of problems, and his attention is directed to the practical application of the principles studied.

Text: Carhart & Chute's "Principles of Physics."

Sub-Freshman Year—3 theoretical periods per week.

201. PHYSICS. The course begins with a review of mechanics, after which heat, electricity and magnetism, sound and light, are taken up successively by lectures, recitations, problems and demonstrations. A knowledge of the elements of plane trigonometry is required for entrance. The laboratory work consists of a series of experiments, mainly quantitative, designed to illustrate and verify the laws and principles considered in the class-room and to develop in the student skill in manipulation and accuracy in making precise measurements.

Texts: Carhart's "College Physics" and Ames and Bliss' "Manual of Experiments in Physics."

Sophomore Year—First Term, 3 theoretical and 2 practical periods per week; Second and Third Term, 3 theoretical and 4 practical periods per week.

202. PHYSICS. Advanced work will be provided for students who have completed the preceding courses, and who wish to continue the study of physics.

ENGLISH AND PUBLIC SPEAKING.

PROFESSOR RICHARDSON.

MR. BYRD.

MR. SCHULZ.

This Department, as its name implies, covers the work of two closely allied branches.

The course in English, of a necessity, lies at the base of all other courses of instruction. Clear and comprehensive knowledge of his mother tongue is absolutely necessary to the student in pursuing any line of college work. Nor is this all; for aside from the practical value of the English instruction as an aid to other branches of study, and as a preparation for business and profession, it is to

his training in this Department, in connection with his study of history, the classics and modern languages, that the student must look for the acquiring of the general culture which has always been the distinguishing mark of the liberally educated man. The English work, which is common to all courses, consists of the study of the structure of the English language, English and American literature, theoretical and practical rhetoric, critical reading and analysis, and constant exercise in expression, composition and theme writing.

The work in public speaking is begun with easy lessons in elocution, and this is continued until the student has acquired a mastery of vocal expression, and a pleasing and forcible delivery. The student is then required to deliver both extempore and prepared speeches and debates, covering a wide range of subjects, in this way not only securing practice in delivery, but also developing the power of logical thought.

COURSES OFFERED.

220. ENGLISH. Thorough review of technical grammar, practical word analysis, composition and letter writing.

Texts used: Marshall's "Business Speller" and Hitchcock's "Enlarged Practice Book in English Composition."

Sub-Freshman and First Year—5 theoretical periods per week.

221. PUBLIC SPEAKING. Instruction and practice in reading correctly and intelligently, and declamations of simple selections.

Sub-Freshman Year—2 practical periods per week.

222. FARM LITERATURE. A reading course in farm periodicals and other agricultural literature, with instruction in the taking and systematization of notes. This course is also open as an elective to the Short Winter Course students during their stay at the College.

First and Second Year—2 practical periods per week.

223. COMPOSITION. Practice in English Composition. Work consists of twelve themes, discussing subjects involved in special technical work.

Second Year—1 theoretical period per week.

224. Rhetoric, Composition and Public Speaking. A study of the principles and practice of rhetoric and composition. Work in rhetoric consists of a study of diction, the sentence, the paragraph, the discourse, the nature and structure of prose and poetry. Work in composition consists of twelve themes, especially adapted to the needs of the class.

The work in public speaking is a part of the English course, and consists of readings and declamations given for the purpose of developing within the student the ability to understand what he reads, and the power to interpret the author's meaning.

Text used: Brooks & Hubbard's "Composition and Rhetoric," Hart's "Rhetoric," Swinton's "Word Analysis."

Freshman Year—4 theoretical and 2 practical periods per week.

225. Composition. Practice in English Composition. Special lectures. Preparation of twelve themes on selected subjects.

Sophomore Year—1 theoretical and 2 practical periods per week.

226. Public Speaking. Lectures on ancient and modern orators, with readings and declamations from their orations. Extempore speeches. Original orations on subjects requiring careful and intelligent research. Debates.

Sophomore Year—2 practical periods per week.

227. American Literature. A study of the most important American writers and their works, with selected readings.

Aside from giving an accurate knowledge of American literature, this course is specially intended to increase the vocabulary of the student, promote facility of expression, and develop the power of original thought.

Text used: Halleck's "American Literature," Bronson's "American Poems."

Sophomore Year—First and Second Term, 2 theoretical periods per week.

228. English Literature. A study of the history of English literature and the lives of the principal writers, with selected readings from English authors, orators and poets.

Text used: Long's "English Literature," Newcomer and Andrew's "Twelve Centuries of English Poems and Prose."

Sophomore Year—Third Term, 2 theoretical periods per week.

Junior Year—First and Second Term, 2 theoretical periods per week.

229. Advanced Composition. Advanced work in English composition. Nine themes, six of which will be connected with the student's technical work. In theme writing the different technical departments and the English Department work conjointly.

Junior Year—First and Second Term, 1 theoretical and 2 practical periods per week; Third Term, 1 theoretical period per week.

230. Public Speaking. Writing and delivering original speeches on subjects specially adapted to the future requirements in the vocation of the student. Debates on current subjects.

Junior Year—2 practical periods per week.

231. English. Special topics given to students in the General Science Course.

Junior Year—First Term, 2 practical periods per week; Second Term, 1 theoretical and 2 practical periods per week.

232. Public Speaking. Special work given to students in the General Science Course.

Junior Year—Third Term, 1 theoretical period per week.

233. English Composition. Special themes illustrating the principles of debate, oration and short story.

Senior Year—1 theoretical period per week.

234. Public Speaking. Individual instruction in writing and delivering orations and debates. Elective.

Senior Year— 4 theoretical periods per week.

235. Advanced English Literature. Detailed study of the literature of the nineteenth century. This course is offered to students in the General Science Course. Elective.

Senior Year—4 theoretical periods per week.

ENTOMOLOGY AND ZOOLOGY.

PROFESSOR SYMONS.

PROFESSOR CORY.

Instruction is given in this Department with a view first, to giving the student the general knowledge of invertebrate and vertebrate zoology, which is necessary as a foundation science for an

agricultural education; second, to fit the student in elementary and advanced entomology, both economic and systematic, so that he may pursue this specialty after graduation. A course in economic entomology and zoology is also given to provide those students who are specializing in any of the allied agricultural sciences, with the information which is essential to their ideal development.

Students who intend to enter the medical profession or work in public health and sanitation will find in the Biological Course the work which will give them the best possible preparation for those professions.

Students wishing to take advanced work in invertebrate zoology are advised to select some subject in entomology. As the State and Experiment Station entomological work is conducted through this Department, there are special advantages for students in applied entomology.

The reference library is unusually complete, containing in addition to the standard works, a majority of the principal entomological and zoological publications. The laboratory is supplied with a large collection of insects for the use of students, and is well equipped with microscopes and other apparatus necessary for practical work in entomology and zoology.

The glass and screen insectaries of the State Horticultural Department and the Maryland Experiment Station are joined to the laboratory, and afford facilities for special investigation to a limited number of advanced students. In addition, a greenhouse 50 x 20 in the new range of houses has been set aside for entomological work.

A laboratory of the Bureau of Entomology has been established at the Experiment Station. The Parasitologist in charge is available for consultation by students specializing in parasitic Hymenoptera.

COURSES OFFERED.

240. General Zoology. This course is offered to all students taking agriculture and allied sciences, and is introductory to all other work in this Department. A study is made of the general form, characteristics, habits and classification of animals from the lowest to the highest forms.

Freshman Year—First Term, 2 theoretical and 4 practical periods per week.

241. Invertebrate Zoology. In this course a thorough study will be made of the anatomy, development and classification of invertebrate animals.

Sophomore Year—First and Second Term, 2 theoretical and 4 practical periods per week.

242. General Entomology. This course is offered all students who have completed course 240. It consists of a study of insects, their classification, structure and relation to man. The practical work will consist of laboratory studies of the structures of typical forms, and a study in the field of the habits of insects, particularly those which are injurious to crops.

As an aid to this study, the student is required to make a collection of the more common insects which appear in the spring.

Sophomore Year—Third Term, 2 theoretical and 4 practical periods per week.

243. Economic Entomology. This course will embrace a detailed study of the life histories of insects of economic importance and the most approved means of control. Practical work will be given in the preparation and application of insecticides and the operation of spraying machinery, of which the Department has a large assortment.

Junior Year—First Term, 2 theoretical and 4 practical periods per week.

244. Economic Entomology. This course is an expansion of course 243 and is required of students in the Biological Course specializing in entomology.

Junior Year—First Term, 1 theoretical and 4 practical periods per week.

245. Vertebrate Zoology. A thorough study of the structure, development, classification and distribution of vertebrates is made in this course. Special attention is given to birds and other vertebrates of economic importance.

Junior Year—First Term, 1 theoretical and 6 practical periods per week; Second Term, 1 theoretical and 4 practical periods per week.

246. Systematic Entomology. This is designed for students in the Biological Course specializing in entomology. It will consist of a comparative study of insect structures, particularly those used in the arrangement of insects into natural groups.

Junior Year—Second Term, 1 theoretical and 4 practical periods per week; Third Term, 2 theoretical and 4 practical periods per week.

247. Systematic Entomology. This course is an expansion of course 246 and is required of students in the Biological Course specializing in entomology.

Junior Year—Third Term, 1 theoretical and 4 practical periods per week.

248. Farm Zoology. This course is offered to students in the First Year of the two-year courses. It includes a study of reptiles, birds, mammals and other animals of economic importance which commonly occur on the farm.

First Year—Second Term, 2 theoretical periods per week.

249. Insecticides and Spraying. Special attention is given in this course to the principles involved in the application of insecticides. A study is made of the different insecticides and spraying apparatus on the market. In the practical work an opportunity will be given to observe and operate a large number of the spraying machines and apparatus which are offered for sale. A special spraying laboratory has been fitted for students taking this course.

Second Year—Second Term, 2 theoretical and 2 practical periods per week.

250. Insects Pests. This course is designed for students in the two-year courses and the various short courses, previous courses in entomology not being prerequisite. The course includes a study of insects from the standpoint of general farm practice.

Second Year—Third Term, 2 theoretical and 4 practical periods per week.

251. Advanced Entomology. This includes courses open to students specializing in entomology.

(a) Insect Anatomy. A study is made of methods of insect histology in connection with a study of the gross and microscopic anatomy of the body of an insect.

(b) Wing Venation. This course involves a study of the homologies of the wing veins of the several groups of insects, showing how the natural relation of those groups may be traced by means of the veins.

Additional elective courses for students in the Biological Course and for post-graduate students are offered in Insect Taxonomy, Morphology and Ecology, Experimental Methods and Insect Delineation.

Senior Year—7 theoretical and 12 practical periods per week.

252. Applied Entomology. This course is given students in the Horticulture Course who have completed course 243. It includes a more detailed study of some of the insects with which the trained horticulturist will have to deal, a consideration of the spraying methods used in large fruit plantings, and the control of insect pests in greenhouses and florists' establishments.

Senior Year—Third Term, 2 theoretical and 4 practical periods per week.

253. Animal Parasites. This course is designed especially for students specializing in animal husbandry. The course involves a discussion of the life history and habits of the more important internal and external parasites of domestic animals. It also includes a study of the treatment employed in the control of these pests.

Senior Year—Third Term, 2 theoretical and 4 practical periods per week.

254. Entomological Research. Independent research on some definite problem in entomology, the results of which are usually incorporated in the graduation thesis.

Senior Year—1 theoretical and 4 practical periods per week.

HORTICULTURE.

PROFESSOR SYMONS.
PROFESSOR BECKENSTRATER.
DR. BESLEY.
ASSOCIATE PROFESSOR ANSPON.
ASSOCIATE PROFESSOR STODDARD.

Recognizing the great importance of every phase of this subject in the State, the Division of Horticulture is offering instruction to

students desiring to specialize in either Pomology, Vegetable Culture or Landscape Gardening and Floriculture. The courses in this subject have been revised, providing for general courses in all phases of Horticulture during the Freshman and Sophomore years and permitting them to specialize in any of the above subjects in the Junior and Senior years.

The arrangement of the courses is, of necessity, subject to such adjustment as will advance the best interests of the students. The object in each course will be to give practical and theoretical training in fruit growing, truck farming and commercial landscape gardening and floriculture. Under the present arrangement the specialists in each subject will have greater opportunity to keep familiar with the progress of their work through the practical demonstration and experimental work in the State.

The students will be required to do practical work throughout the course, and in addition, they must have spent at least two summers or the equivalent, during the four years' course, in an approved commercial establishment dealing with the subject in which they are specializing. The equipment of each Department is being steadily increased and the orchards, gardens and greenhouses of College and Experiment Station afford unlimited opportunities for practical observation. In addition, the students of each course will be expected to take trips to selected commercial orchards, truck farms, greenhouses and markets.

The Division of Horticulture offers two regular courses: (a) a four-year course leading to the degree of Bachelor of Science; (b) a two-year course for proficiency in which a certificate is awarded.

The work given in the two-year course will also be more efficient, as for the most part the courses will be given separately from those of the regular four-year students. These students will also have an opportunity to specialize in any phase of horticulture in which they are interested during their second year.

POMOLOGY.

260. Elementary Pomology. An introductory course dealing with the principles of the subject. It is intended for all students

in agriculture and horticulture, and is prerequisite to all the courses in pomology. Lectures, recitations and practical exercises.

Freshman Year—Third Term, 2 practical periods per week.

First Year—First Term, 2 theoretical and 4 practical periods per week.

261. Principles of Pomology. A continuation of course 260. A study of the methods of propagation, pruning and planting.

Sophomore Year—First Term, 2 theoretical and 4 practical periods per week.

First Year—Second Term, 2 theoretical and 4 practical periods per week.

262. Principles of Small Fruit Culture. An elementary course dealing with the general principles of small fruit growing, including a study of cultural requirements, propagation and the relative importance of the different small fruits for home use and market.

Sophomore Year—Second Term, 2 theoretical and 2 practical periods per week.

263. Commercial Pomology. This course considers the harvesting, packing, storing and marketing of fruits. Special stress is given to transportation and market problems. The leading commercial varieties of fruits are also studied. Lectures, recitations and practical exercises.

Junior and Second Year—First Term, 2 theoretical and 2 practical periods per week.

264. Practical Small Fruit Culture. Practical directions for the production and handling of strawberries, grapes and bush fruits for home use and market, including a study of crop rotation and fertilization.

Junior Year—Second Term, 2 theoretical and 4 practical periods per week.

First Year—Third Term, 2 theoretical and 2 practical periods per week.

265. Practical Pomology. A study of the orchard sites, soils, varieties and planting plans for the orchard; cultivation, cover crops, fertilizers and pruning as practiced in commercial orchards.

Junior Year—Second Term, 2 theoretical and 4 practical periods per week; Third Term, 2 theoretical and 2 practical periods per week.

Senior Year—Second Term, 1 theoretical and 6 practical periods per week.

266. Commercial Small Fruit Culture. A study of methods of harvesting, packing and marketing small and bush fruits and grapes. Special attention is given market problems and shipping associations.

Junior Year—Third Term, 2 theoretical and 4 practical periods per week.

267. Systematic Pomology. This course embraces a study of the evolution and relationship of the economic fruits. It includes descriptions of fruit and the identification of the more common varieties of Maryland. Fruit judging and the selection of fruits for exhibition purposes are also considered. Lectures, recitations and practical exercises.

Senior Year—First Term, 2 theoretical and 4 practical periods per week; Second Term, 1 theoretical and 4 practical periods per week.

268. Viticulture. A course in commercial vineyarding, including a consideration of sites, soils, propagation, pruning, training and cultural methods. Also a study of the manufacture of unfermented grape juice and wine-making.

Senior Year—First Term, 2 theoretical and 2 practical periods per week.

269. Literature of Fruit Growing. History and growth of horticultural writings. A study of important publications, current horticultural periodicals and methods of research.

Senior Year—Second Term, 1 theoretical and 2 practical periods per week.

270. Nut Culture. This course is designed to cover the subject in a general way; it includes the propagation, orchard management and marketing of the leading American nuts.

Senior Year—Second Term, 2 theoretical and 2 practical periods per week.

Second Year—Second Term, 2 theoretical periods per week.

271. Citrus and Sub-Tropical Fruits. A general course in citrus and sub-tropical fruits of commercial importance.

Senior Year, Second Term, 3 theoretical periods per week.

272. Plant Breeding. A general course in the science and art of plant breeding. Observed factors in organic evolution, variation and heredity are considered in so far as they have a bearing upon this subject. The discussion of the various methods of breeding and improvement are accompanied by practice in the orchard and greenhouses.

Senior Year—Second Term, 2 theoretical periods per week; Third Term, 2 theoretical and 2 practical periods per week.

273. Advanced Small Fruit Culture. A continuation of course 266, taking up the history, evolution and location of the principal small fruit sections, and a discussion of varieties, planting, training, care and fertilization.

Senior Year—Third Term, 2 theoretical and 2 practical periods per week.

274. Advanced Pomology. Special problems in adaptation, propagation, cultivation and pruning as they arise in commercial orchards.

Senior Year—Third Term, 2 theoretical and 2 practical periods per week.

275. Research Work and Thesis. This course is given to test and develop the student's power of observation and initiative. The work will be arranged with each student, individually, and the results will be written up in form of a thesis, which is required of all candidates for the Bachelor of Science Degree.

Senior Year—First Term, 2 practical periods per week; Second and Third Term, 6 practical periods per week.

276. Post-Graduate Work. An opportunity for advanced work is given to candidates who have the Bachelor of Science Degree.

VEGETABLE CULTURE.

280. Vegetable Gardening. This course includes the general principles of vegetable culture, and a study of the home garden.

The home garden is studied specially, because students in other departments do not get another opportunity to take up this work.

Freshman Year—Second Term, 2 practical periods per week.

First Year—Second Term, 1 theoretical and 4 practical periods per week.

281. Practical Vegetable Growing. A course designed to carry out as far as possible in a practical way the different phases of vegetable culture. The student will be expected to assist in starting plants under glass and growing crops in the field.

Sophomore and Junior Year—Third Term, 1 theoretical and 4 practical periods per week.

282. Vegetable Growing Under Glass. The use of the different glass structures in vegetable culture. Forcing vegetables and growing winter crops in the greenhouse.

Junior Year—First Term, 1 theoretical and 4 practical periods per week; Second Term, 2 theoretical and 8 practical periods per week; Third Term, 6 practical periods per week.

Second Year—First Term, 2 theoretical and 4 practical periods per week; Second Term, 4 practical periods per week.

283. Literature of Vegetable Culture. History and development of vegetable crops. The methods of breeding used in bringing about this development. A study of current vegetable publications.

Junior Year—Second and Third Term, 2 theoretical periods per week.

284. Vegetable Culture and Its Relation to the Canning Industry. Special reference to the vegetable crops and varieties grown for canning.

Junior Year—Third Term, 2 theoretical periods per week.

Second Year—First Term, 2 theoretical periods per week.

285. Market Gardening. A continuation of courses 280 and 281. Prerequisites, courses 280 and 281. This course includes growing, harvesting, grading, packing and marketing commercial vegetable crops. It also includes a systematic study of some of the more important commercial varieties. Whenever possible, trips will be made to markets and vegetable farms.

Senior Year—First Term, 2 theoretical and 6 practical periods per week; Second Term, 6 theoretical and 12 practical periods per week; Third Term, 6 practical periods per week.

Second Year—Third Term, 4 practical periods per week.

286. Experimental Vegetable Culture. A study of Experiment Station methods. The planning of definite experiments and estimating approximate requirements for carrying on vegetable experiments.

Senior Year—Third Term, 2 theoretical and 4 practical periods per week.

287. Research and Thesis. The prime object of this work is to test the student's power of observation and initiative. The individual student will be required to select some special line of research in vegetable culture and submit the same to the head of the Department for approval not later than April first of the Junior Year. The results must be written up for a thesis required for graduation.

Senior Year—First Term, 1 theoretical and 4 practical periods per week; Second Term, 2 theoretical and 12 practical periods per week; Third Term, 1 theoretical and 8 practical periods per week.

LANDSCAPE GARDENING AND FLORICULTURE.

300. Principles of Landscape Gardening. An elementary course dealing with the principles of landscape gardening and their application to home grounds.

Freshman Year—First Term, 1 theoretical and 2 practical periods per week.

First Year—First Term, 2 theoretical and 2 practical periods per week.

301. Ornamentation of Home Grounds. Continuation of course 300. This course deals more in detail with the beautifying of home surroundings.

Sophomore and Second Year—Second Term, 2 theoretical periods per week; Third Term, 4 practical periods per week.

302. Greenhouse Management. This course is devoted to the soil, culture and methods of handling greenhouse crops.

Junior and Second Year—First Term, 2 theoretical and 2 practical periods per week.

303. Floral Decoration. The use of cut flowers and plants in decorations, baskets and designs.

Junior Year—Second Term, 2 practical periods per week.

304. Floriculture. Forcing plants and flowers for wholesale and retail markets; methods of handling and marketing the crops.

Junior Year—Second and Third Term, 2 theoretical and 4 practical periods per week.

Second Year—Third Term, 2 theoretical and 4 practical periods per week.

305. Greenhouse Construction. A study of the types of houses, cost, materials and methods of heating and ventilating used for growing plants.

Junior Year—Second Term, 2 theoretical and 2 practical periods per week.

Second Year—First Term, 2 theoretical and 2 practical periods per week.

306. Plant Materials. This course comprises a study of the characters, habits, culture and suitability for landscape work of trees, shrubs and perennials, together with their planting and arrangement.

Junior and Second Year—Third Term, 2 theoretical and 2 practical periods per week.

307. Tree Surgery. A course in the treatment of trees and shrubs, including technical details in pruning to control insect enemies and fungus diseases.

Senior Year—First Term, 1 theoretical and 4 practical periods per week.

308. Landscape Design. A course dealing with the composition of public parks and private grounds, with practical work in planning and designing.

Senior Year—First Term, 2 theoretical and 6 practical periods per week.

309. Civic Art. This course deals with the principles of landscape gardening as applied to city, village and rural design and improvement.

Senior Year—Second Term, 2 theoretical and 2 practical periods per week.

310. Planting Plans. This course deals with planting designs and plans, and detailed planting plans for public and private grounds.

Senior Year—Second Term, 2 theoretical and 6 practical periods per week.

311. Aesthetics of Landscape Gardening. A course dealing with the underlying principles designed to give the student a broad conception of the art.

Senior Year—Second Term, 2 theoretical periods per week.

312. Landscape Practice. This course takes up the study of grading plans and working drawings, together with specifications and contracts.

Senior Year—Second Term, 2 theoretical and 8 practical periods per week.

313. History and Literature of Landscape Gardening. A reference course dealing with the literature and the different stages of development of the art.

Senior Year—Third Term, 2 theoretical periods per week.

314. Garden Flowers. A course in annuals, herbaceous perennials, bulbous plants, and shrubs used in ornamental plantings and for cut flowers.

Senior Year—Third Term, 2 theoretical and 4 practical periods per week.

315. Floriculture. This course, which is given to students in the Agricultural Education Course, includes window gardening, culture of flowers upon home grounds, soils, fertilizers, potting and shifting of plants, and the use of cut flowers in table decorations.

Senior Year—Third Term, 2 theoretical and 2 practical periods per week.

316. Research and Thesis. The designing, planning and detail planting of some practical landscape problem, or some special phase of floriculture.

Senior Year—Second Term, 2 theoretical and 4 practical periods per week; Third Term, 12 practical periods per week.

FORESTRY.

The instruction in forestry is planned to give to the student, who is fitting himself to take up the practical problems of farm management, a sufficient knowledge of the principles of forestry to enable him to apply to the wood lot or timber tract, which is a part of practically every farm, the same degree of intelligent direction which he is prepared to give to the tilled lands and thus obtain equally satisfactory results.

The following course is offered:

320. FARM FORESTRY. This course includes forest botany, wood-management, measurement, valuation and utilization of forest crops, fire protection, nursery practice and tree planting. Lectures and field work.

Senior and Second Year—Third Term, 2 theoretical and 4 practical periods per week.

LANGUAGES.

PROFESSOR SPENCE.
MR. SCHULZ.

The Department of Languages embraces the study of three branches: Latin, German and French. All students are required to take the courses in German or French. Students may elect to take Latin in the Freshman Year in place of History, provided that they have completed the work outlined for the Sub-Freshman Class or its equivalent.

The course of study in Latin is given with two ends in view—first, to train the mind into accurate and close methods of reasoning; second, to give the student a more thorough and comprehensive knowledge of his own language than he could otherwise acquire. Special attention is paid to Latin forms and terminations and to the derivation of English words from Latin roots.

So large a proportion of modern scientific literature is in German and French that a reading knowledge of these languages has become almost essential to the student pursuing advanced courses in the various spheres of scientific research. Instruction in these

branches is given, therefore, to enable the student to translate intelligently the works of French and German masters in the domain of science, for, frequently there are no English versions of their works. As the student becomes more familiar with foreign scientific terms and construction, he is required to translate treatises bearing upon the special line of work which he may be pursuing.

LATIN.

COURSES OFFERED.

340. SYNTAX AND TRANSLATION. Reading of Caesar and Sallust with prose composition selected from the text read.

Text-books: Smith's "Latin Lessons," Harper and Tolman's "Commentaries of Caesar," and Scudder's "Sallust."

Sub-Freshman Year—3 theoretical periods per week.

Freshman Year—3 theoretical periods per week.

341. MYTHOLOGY, TRANSLATION AND LITERATURE. Reading of Virgil and Horace with lectures on mythology and Latin literature. Elective.

Text-books: To be selected later.

Sophomore Year—4 theoretical periods per week.

GERMAN.

COURSES OFFERED.

360. GRAMMAR AND CONVERSATION.

Text-book: Bacon's "German Grammar."

Sub-Freshman Year—3 theoretical periods per week.

Freshman Year—3 theoretical periods per week.

361. TRANSLATION.

Text-books selected from the following: Hauff's "Das Kalte Herz," Schiller's "Der Neffe als Onkel," Wildenbruch's "Das Edle Blut" and "Der Letzte," Hillern's "Hoher als die Kirche," Grandgent's "Ali Baba and the Forty Thieves," Sybel's "Die Erhebung

Europas," Walther's "Algemeine Meereskunde," Brant and Day's "Scientific German," Wallentin's "Grundzuge der Naturlehre," Moser's "Der Bibliothekar."

Sophomore Year—3 theoretical periods per week.

362. TRANSLATION. Selected readings from various literary and scientific texts and periodicals.

Junior Year—3 theoretical periods per week.

Senior Year—4 theoretical periods per week.

FRENCH.

COURSES OFFERED.

380. GRAMMAR AND COMPOSITION.

Text-book: Chardenal's "Complete French Course" (Revised), Aldrich & Foster's "Elementary French" and "French Reader," Super's "French Reader," and selected texts.

Sub-Freshman Year—3 theoretical periods per week.

Freshman Year—3 theoretical periods per week.

381. TRANSLATION. Selections from standard authors.

Sophomore Year—3 theoretical periods per week.

382. TRANSLATION. Advanced texts. Prose composition.

Junior Year—3 theoretical periods per week.

Senior Year—4 theoretical periods per week.

MATHEMATICS.

PROFESSOR HARRISON.

MR. SPRINGER.

Mathematics is the basis upon which scientific information rests. A knowledge of the study is necessary, as much from the utilitarian point of view as from the mental training its acquisition gives. Its importance as a factor in our College course takes its rise from the former consideration. All instruction in this work is with a view to the equipping of students for the more practical work soon to follow.

The class work in mathematics in the several courses consists of arithmetic, accounting, algebra, geometry (plane and solid), trigonometry, analytic geometry, differential and integral calculus, and their application to mechanics, engineering, physics and surveying.

COURSES OFFERED.

400. FARM ARITHMETIC. Practical problems.

First Year—First Term, 3 theoretical periods per week.

401. FARM ACCOUNTS. Brief course.

First Year—Third Term, 4 practical periods per week.

402. ALGEBRA. A thorough course in elementary algebra.

Text-book: Wentworth—Smith.

Sub-Freshman Year—4 theoretical periods per week.

403. PLANE GEOMETRY. Books one to five, inclusive.

Text-book: Wentworth.

Sub-Freshman Year—4 theoretical periods per week.

404. MATHEMATICS. Practical applications of the fundamental laws of elementary mathematics. Lectures will be given on the subjects considered in this course whenever they are deemed necessary.

Freshman Year—First Term, 2 practical periods per week.

405. SOLID GEOMETRY. Books six to eight, inclusive, with selected practical problems.

Text-book: Wentworth—Smith.

Freshman Year—First Term, 4 theoretical periods per week.

406. TRIGONOMETRY. Deduction of formulas and practical applications of same in the solution of right and oblique triangles, etc

Text-book: Wentworth.

Freshman Year—Second Term, 5 theoretical periods per week Third Term, 2 theoretical periods per week.

407. ADVANCED ALGEBRA. Elementary theory of equations, partial fractions, etc.

Text-book: Taylor.

Freshman Year—Third Term, 3 theoretical periods per week.

408. ANALYTICAL GEOMETRY. Geometry of two and three dimensions, loci of general equations of second order, higher plan curves, etc.

Text-book: Wentworth.

Sophomore Year—First Term, 5 theoretical periods per week; Second Term, 3 theoretical periods per week.

409. CALCULUS. A discussion of the methods used in differentiation and integration, and the application of these methods in determining maxima and minima, areas, volumes, moments of inertia, etc.

Text-book: Bowser.

Sophomore Year—Second Term, 2 theoretical periods per week; Third Term, 5 theoretical periods per week.

Junior Year—First Term, 5 theoretical periods per week.

MECHANICAL ENGINEERING.

PROFESSOR GWINNER.
ASSOCIATE PROFESSOR CRISP.
MR. WARTHEN.

This Department offers a Course in Mechanical Engineering leading to the degree of Bachelor of Science in Mechanical Engineering. The list of all subjects required to be completed to obtain this degree is given on page 103. It prepares young men to design and construct machinery, to superintend engineering establishments, to become superintendents of construction and to teach mechanical engineering and manual training. For degree of Mechanical Engineer see page 122.

The record of its graduates shows that the course is equipping such for immediate usefulness in the technical field.

Instruction is given by means of lectures and recitations, accompanied by a large amount of practice in the drafting rooms, shops and experimental laboratory.

The program of the Department is arranged to embody the two-fold belief that a thorough training is best secured by a study of the practical application of the principles involved, as well as of the principles.

EQUIPMENT. The Mechanical Engineering Laboratories are situated in the engineering building, which contains the wood-work-

ing and machine shops, drafting and lecture rooms, foundry and blacksmith shops as well as the College power plant.

The wood-working shop contains accommodations for bench work and wood turning. The power machinery in this shop is a band and universal circular saw, five 12-inch turning lathes, one 16-inch by 10-foot pattern maker's lathe, a grindstone, wood trimmer, 26-inch wood planer and universal tool grinder.

In the forge shops are sixteen power forges, two hand forges and a pressure fan and exhauster for keeping the shop free of smoke. There is a full assortment of smith's tools for each forge.

The foundry is equipped with an iron cupola, which melts 1,200 pounds of iron per hour, a brass furnace, one core-oven and the necessary flasks and tools.

The machine shop equipment consists of one 10-inch speed lathe one 22-inch engine-lathe with compound rest, one 12-inch combined foot and power lathe, two 14-inch engine-lathes, one 24-inch drill press, one No. 4 emery tool grinder, one No. 1½ universal milling machine, and an assortment of vises, taps, dies, pipe-tools and measuring instruments.

The machinery of the pattern and machine shops is driven by a 9 by 14-inch automatic cut off, high speed engine, built by members of the Junior and Senior Mechanical Engineering Classes, after the standard design of the Atlas engine. An 8 by 12-inch engine drives the machinery of the blacksmith shop and foundry. It was presented to the College by the City of Baltimore, and secured through the efforts of Rear-Admiral John D. Ford, United States Navy, retired.

The experimental laboratory contains: A hundred thousand pound Riehle combined hand and power testing machine for making tensile, compression, shearing and transverse tests on various kinds of materials, turbo-generator set, consisting of a Curtis steam turbine and thirty-five K. W. General Electric compound wound generator for making steam and electric efficiency tests. This set is connected with the general lighting system of the College so that any time it may be tested to its capacity. It may also be used for lighting purposes if necessary. A cross compound condensing Corliss engine of fifty horse-power, equipped with brake, indicators

relief valves, reducing motion, steam and vacuum gauges, and speed indicator, gives ample opportunity for steam consumption and brake tests. This is connected with the shops, so that any time it may be switched on and drive them. The College power plant with its vacuum heating system, three one-hundred horse-power return tubular boilers, and two electric generating units offer unexcelled opportunities for experimental work.

The three drafting rooms are well equipped for practical work. Two of these are used by the Junior and Senior Classes, each student being provided with a separate desk. The third room is used jointly by the Freshman and Sophomore students and contains eleven drawing tables, accommodating about sixty students.

Engineering students are to provide themselves with approved drawing outfit, materials and book; the cost of which during the Freshman Year amounts to about $15.00. The cost to other students taking mechanical drawing is about $5.00. The College does not furnish these, but they are purchased by the student and are his property.

The combined blue print and dark room with its commodious printing frames affords splendid opportunities for sun printing, which is so useful to engineering students.

Tours of Inspection. The proximity of the College to Baltimore, Washington and Philadelphia, with their great industrial enterprises, offers unexcelled opportunities to engineering students to acquaint themselves practically with what is being done in modern engineering construction. Upon trips of inspection an instructor accompanies the class and explains the different processes, plants and machines.

COURSES OFFERED.

420. Freehand Drawing. Technical sketching. Pen and ink shading.

Freshman Year—First Term, 4 practical periods per week.

421. Mechanical Drawing. Practice in plain lettering, use of instruments, projection and simple working drawings, the plates upon completion being enclosed in covers properly titled by the students.

Text-book: Tracy's "Mechanical Drawing."

Freshman Year—4 practical periods per week.

422. Farm Drawing. Geometrical construction, plan and elevation with details of farm gate and plan and elevation of simple farm structure.

First Year—Second Term, 4 practical periods per week.

423. Technical Instruction. Explanation of the reading of mechanical drawings; the proper cutting angles, care and adjustment of carpenter tools; relative strength of wood joints; wood, its shrinking and warping, and how to correct and prevent. Drill in problems in arithmetic, algebra and drawing by notes and lectures.

Text-book: Goss' "Bench Work in Wood."

Freshman Year—First Term, 2 theoretical periods per week.

424. Wood Work. During the First Term is taught the use and care of bench tools, exercise in sawing, mortising, tenoning and laying out work from blue prints. The Second Term is devoted to projects involving construction, decoration and wood turning. During the Third Term the principles and process of pattern making are taught, together with enough foundry work to demonstrate the uses of pattern making.

Freshman Year—First Term, 6 practical periods per week; Second and Third Term, 4 practical periods per week.

425. Farm Wood Work. Use of tools in constructing trestles, gates and frames.

First Year—Second Term, 4 practical periods per week.

426. Farm Buildings. Design and specifications of a simple typical building in timber or concrete and lectures upon the details. The course is very practical and latitude is permitted the student to develop his ideas.

Freshman and First Year—Second Term, 4 practical periods per week.

427. Descriptive Geometry. Detailing of machinery and drawing to scale from blue prints. Tracing and blue printing, and representation of flat and round surfaces by ink shading. Its relation to mechanical drawing and the solution of such problems relating to magnitudes in space as bear directly upon those which present themselves to civil, electrical and mechanical engineers.

Text-books: Faunce's "Descriptive Geometry."

Sophomore Year—First Term, 1 theoretical and 4 practical periods per week; Second Term, 2 theoretical and 6 practical periods per week; Third Term, 2 theoretical periods per week.

428. Blacksmithing. The making of the fire and how to keep it in order. The operations of drawing-out, upsetting and bending of iron and steel, including the calculations of stock for bent shapes. Welding. Construction of steel tools for use in the machine shop, including tool dressing and tempering. Annealing.

Sophomore and Junior Year—First and Second Term, 4 practical periods per week.

429. Technical Mechanics. Elementary principles of applied mechanics, calculations of gear and pulley trains, bent levers, calculation of belt lengths, lacing belts, the suction pump, and bolts and screws.

Text-book: Jamieson's "Mechanics."

Sophomore Year—Second Term, 2 theoretical periods per week.

430. Foundry Work. Moulding in iron and brass. Core making. The cupola and its management. Lectures on the selection of irons by fracture, fuels, melting and mixing of metals.

Sophomore Year—Third Term, 8 practical periods per week.

431. Steam Engines, Boilers and Dynamos. The principles of steam and the steam engine. The slide valve and valve diagrams. The indicator and its diagram. Steam boilers, the various types and their advantages. Each student taking this course is required to spend certain hours in the power plant actually operating the engines, boilers and dynamos. The theory of dynamos is given in course 182.

Text-book: Ripper's "Advanced Steam Engine."

Sophomore Year—Third Term, 3 theoretical periods per week.

432. Elementary Machine Design. Freehand sketching of the details of machinery and making working drawings of same. Calculations and drawings of a simple type punching press.

Text-book: Hoffman's "Machine Design."

Junior Year—First Term, 1 theoretical and 4 practical periods per week; Second Term, 2 theoretical and 4 practical periods per week; Third Term, 3 theoretical and 8 practical periods per week.

433. Machine Work. Elementary principles of vise and machine work, which includes turning, planing, drilling, screw cutting and filing. This is preceded by study of the different machines used in the machine shops.

Junior Year—First and Second Term, 4 practical periods per week; Third Term, 12 practical periods per week.

Senior Year—4 practical periods per week.

434. Graphic Statics. The theory and practice of the method of determining stresses in cranes, roof trusses and bridges, and stress on beams and girders due to traveling loads.

Text-book: Merriman and Jacoby's "Graphic Statics."

Junior Year—Second Term, 4 theoretical periods per week.

435. Structural Design. Analysis of stresses in structural steel buildings, traveling cranes and derricks. Design of crane girders, lattice girders and roof trusses. In addition mechanical engineering students have design of cranes and civil engineering students have design of truss bridges and retaining walls. Both analytical and graphical methods are used, that being used which is best suited to problem.

Text-books: "Cambria Steel," Ketchum's "Steel Mill Buildings," Merriman's "Bridge Design," Thompson's "Bridge and Structural Design."

Senior Year—First and Second Term, 2 theoretical and 4 practical periods per week; Third Term, 2 theoretical and 6 practical periods per week.

436. Mechanics of Engineering. The mechanics of solids. Statics of a material point and of rigid bodies. Chains and cords. Centrifugal and centripetal forces. Work. Power. Energy. Friction. Original problems. Theoretical hydraulics.

Text-book: Church's "Mechanics of Engineering."

Senior Year—First Term, 3 theoretical periods per week; Second and Third Term, 4 theoretical periods per week.

437. Thermodynamics. Theory of heat, gases and vapors. Heat engines. Air and refrigeration machinery. Principles of steam boilers, chimneys, steam piping and distribution of the same. The steam turbine.

Text-book: Peabody's "Thermodynamics," and Mark and Davis' "Steam Tables."

Senior Year—First Term, 2 theoretical periods per week; Second and Third Term, 3 theoretical periods per week.

438. Heating and Ventilation. Principles and comparison of the different systems in common use. Elementary design of some one system.

Text-book: Hoffman's "Heating and Ventilation."

Senior Year—First Term, 2 theoretical and 2 practical periods per week.

439. Experimental Engineering. Determining the amount of moisture in steam; the efficiency of the injector; the transit and its uses; indicator practice and the use of the planimeter; slide valve setting; the slide rule and micrometer; the analysis of boiler feed water; flue gases; lubricating oils; and the determination of the heating value of coals. The efficiency test of a Curtis steam turbine combined with that of an electric generator. The brake test and steam consumption of a cross compound condensing Corliss engine under varying loading. The testing of iron, steel and wood to determine their commercial values. The testing of cement to determine its tensile and compressive strength. All such tests must be written upon standard forms provided for each student.

Senior Year—First and Second Term, 8 practical periods per week; Third Term, 4 practical periods per week.

440. Hydromechanics. Pumps and pumping machinery. Water supply engineering. Practical consideration of friction of water in pipes. Cost data of machinery. Notes and lectures.

Senior Year—Second Term, 3 theoretical periods per week.

441. Design of Farm Structures. The design and arrangement of farm buildings and equipment. Lectures also cover the heating, lighting, ventilation, plumbing and costs.

Senior Year—Second and Third Term, 2 theoretical and 4 practical periods per week.

442. Design of Farm Machinery. The design and drafting of those portions of farm machinery common to engines, harvesting, pumping and fertilizing machinery such as levers, shafts, gears and frames.

Senior Year—Second and Third Term, 2 theoretical and 4 practical periods per week.

443. School Architecture. The planning and detailing of moderate priced and medium sized school buildings; including the heating, ventilation, lighting and plumbing.

Senior Year—Third Term, 3 theoretical and 4 practical periods per week.

444. Advanced Pattern Making. Practical examples in loose-piece and three-part-flask patterns and in engine patterns.

Senior Year—Third Term, 8 practical periods per week.

445. Thesis. The time devoted to the problem selected as the subject for a thesis depends upon the difficulties involved in its solution. The time here stated is a minimum.

Senior Year—Second Term, 4 practical periods per week; Third Term, 2 theoretical and 8 practical periods per week.

MILITARY SCIENCE.

MAJOR DAPRAY.

The Congress of the United States, subject to certain conditions, now appropriates annually a generous sum for each Agricultural College of the United States.

One of the conditions imposed by this grant is that the students shall receive a course of training in Military Tactics.

The instructor for this course is supplied by the War Department and is an officer of the Regular Army, detailed from his Regiment or Corps for this duty.

The value of such military training may be considered from two viewpoints: First, that of the United States Government; and, second, that of the individual student.

To consider the first: The Government, depending as it does upon the citizen soldier for its Volunteer Army in times of national peril, realizes that an army, recruited from raw material as regards both officers and men, would be a most hopeless proposition in these days of quick action. If the officers were trained men they would be of inestimable value in shaping these collections of citizens into efficient armies.

Government aided schools are therefore required to give such a course in Military Tactics as will create in this country a body of men, whose knowledge of the Military Art is sufficient to enable them to officer companies of infantry when called upon by the Government in the defense of the country.

From the viewpoint of the student, the military training makes for character—"it systematically develops the body and it educates the mind along a consistent line for the double purpose of clear thinking and effective practical work."

"It exercises the character, it disciplines the mind, it inculcates habits of subordination to lawful authority, of strict personal accountability for word and act, of truth telling, of integrity and fidelity to trust, of simplicity of life and of courage."

In addition, a cadet has during his term as such, most excellent opportunities to perfect himself in the great art of commanding others.

This problem is for every cadet to solve some time during his cadet career. He finds that he must know his men, and that he must know how to appeal to those under him, if he wishes to get results without antagonizing them.

How often capable men fail, simply because they have not the knack of exercising authority so as to obtain the most satisfactory results.

Often do graduates, even those to whom the military training was distasteful, express their appreciation of the value that this training which they received at College, is to them in their several walks of life.

INSPECTION.

The War Department designates an officer of the General Staff of the Regular Army to make an annual inspection of the Military Department of each of the institutions of learning in the United States at which an officer is regularly detailed. There are about one hundred such institutions. This inspector rates these schools according to their status and military efficiency.

ORGANIZATION.

The Corps of Cadets is organized as a battalion of three companies, staff and band, the drill and administration of which conform as far as possible to that of the Regular Army.

All students, other than those physically disabled, and those specially excused by the President of the College, are required to drill, and upon entering are enrolled in one of the companies of the battalion.

INSTRUCTION.

The instruction in the Military Department is both practical and theoretical. The practical instruction includes the School of the Soldier, Squad, Company and Battalion in Close and Extended Order, Ceremonies of Guard-Mounting, Review and Inspection, Dress Parade, Escort to the Color, Advance and Rear Guard work. Patrolling and Scouting, Marches, Target Practice, Visual Signalling, Military Engineering and Topography.

The theoretical instruction is given to all members of the Senior Class and consists of instruction in Infantry Drill Regulations, Manual of Guard Duty, Firing Regulations for Small Arms, Field Service Regulations, First Aid to the Injured, etc., supplemented by lectures on tactical subjects, Army Regulations, Company Books and Papers, Messing, Cooking, Tactics, Camp Sanitation and Military Law.

EQUIPMENT.

The battalion of cadets is equipped with the United States magazine rifle, caliber 30, known as the Krag-Jorgensen, with complete equipment of side arms, cartridge box, etc. The cadet officers and non-commissioned staff officers are equipped with the regulation West Point cadet sword and sash.

The Government also has supplied the battalion with the new regulation sub-calibre target rifle for gallery practice, and has been very liberal in the allowance of ammunition for gallery practice, of blank cartridges for field exercises, and of ball cartridges for outdoor range practice.

Students are held strictly accountable for all arms and equipment issued to them.

PROMOTIONS.

The officers and non-commissioned officers of the corps are selected with reference primarily to their fitness for the duties they will be required to perform. Their general deportment and proficiency in academic work are also given weight in making such selection.

Commissioned officers are, as a rule, selected from the Senior Class, sergeants from the Junior Class, and corporals from the Sophomore Class.

Cadet officers are required to serve from the beginning of the scholastic year up to March 1, of that year. On this date readjustment of rank is made, based upon the following: Military Efficiency, as evidenced by the fall drills and winter recitations in the Tactical Department; Military Discipline and Soldierly Bearing; General Deportment.

UNIFORM.

The uniform worn by all members of the battalion of cadets is the regulation West Point fatigue uniform, and is made of the best Charlottesville gray cloth. The uniform consists of the gray fatigue blouse, trousers and cap for all military formations. By special contract with one of the largest Military Equipment houses in the United States, the uniform is furnished at a very low price. Measures for this uniform are taken as soon as the student arrives at College, and fit is guaranteed.

In summer, the field service uniform is worn, consisting of olive drab blouse, shirt, and trousers, with canvas leggins, regulation campaign hat, tan waist belt and black tie.

White gloves, collars, caps and other military accessories may be purchased at the stores near the College, or from the contractor who furnishes the uniforms.

Information concerning the cost of uniforms, etc., may be found on page 130.

PHYSICAL CULTURE.

DIRECTOR BYRD.

The physical culture of the students is provided for by a regular course of instruction in the Gymnasium. The course is carefully planned, so as to develop gradually and scientifically the physical powers of each student. One of the most valuable features of this Department is a complete anthropometry outfit, by means of which measurements and strength tests of students are taken at the beginning and also at the end of each scholastic year. By means of these measurements and tests the exact physical condition of each individual student can be ascertained, and such special exercises given as will produce a symmetrical development of the body. While desiring to make the work in the Gymnasium of practical value to all the students, the required work has been temporarily discontinued on account of unusual conditions, but will be resumed as soon as conditions permit. Lectures on Hygiene, the care of the person in its relation to physical well-being, are given students in the Sub-Freshman Class.

SUB-COLLEGIATE INSTRUCTION.

PROFESSOR HARRISON.
PROFESSOR RICHARDSON.

This Department was established in 1892, and reorganized in 1915; and is designed to meet the requirements of those students who have not had the advantage of a thorough grammar and high school training, with a view to equipping them to enter the regular collegiate department.

Only such students are desired as will be able to enter the Freshman Class within a year, and who are fifteen years of age. This course is recommended specially to students who have not been to school for several years; for their progress in the regular collegiate course, by virtue of such a drawback, would be seriously impeded. It is to be remarked that as a rule the students who have

taken this course make excellent progress in their later college work. Students in this Department are subject to the same military regulations as other students.

For outline of courses see page 113.

VETERINARY SCIENCE.

PROFESSOR BUCKLEY.

This Department offers instruction in the elements of veterinary science. The course embraces the study of the external form as well as the internal structure and functions of the domesticated animals. It is intended to supplement animal husbandry instruction, and does not have for its object the training of students for veterinary practice. The preservation of health in animals is more aimed at than their restoration from disease. When studiously pursued the courses offered are of great value to the breeder, feeder or manager of live stock.

COURSES OFFERED.

The accompanying brief descriptions indicate the scope of the different courses.

480. ANATOMY AND PHYSIOLOGY. This course embraces a general consideration of the structure and functions of the animal body, with especial reference to animal production and dairying.

Junior Year—Second Term, 3 theoretical periods per week.

481. ANIMAL DISEASES. A study is made of the diseases of the domesticated animals with emphasis upon sanitation, practical bacteriology, nursing, administration of medicine and use of common medicinal substances. The aim of this course is to enable the student to perceive the early appearance of diseases and intelligently care for them under proper veterinary supervision.

Senior Year—Second Term, 5 theoretical and 6 practical periods per week.

482. ANIMAL DISEASES. A briefer course in animal diseases is offered to the students in the two-year Agricultural and Horticultural Courses.

Second Year—Second Term, 2 theoretical and 4 practical periods per week.

THE COLLEGE LIBRARY.

DR. SILVESTER.

MISS CONNER.

The College Library may be properly regarded as one of the departments of the institution, as its aid for purposes of reference and its influence upon the mental development of the students must always be felt throughout all courses. The present quarters of the Library, while adequate for its immediate needs, will necessarily be too limited in the course of time. The reading room is well arranged and lighted, and is in all respects comfortable and convenient.

While the Library is not large, the collection of works has been carefully chosen, and the shelves contain a fair supply of works of reference, history, biography, essays, poetry and the standard works of fiction. Several thousand volumes of bound United States Government Reports comprise an important addition to the reference works of the Library. Most of the leading magazines and a number of newspapers are subscribed for; technical periodicals and works of reference relating to specific branches are deposited in the libraries of the various departments.

The works in the Library are classified according to the modern Dewey Decimal System of classification. As rapidly as possible the sets of Government Reports that are most valuable are being completed and catalogued. At present there are on hand completed to date, or nearing completion, sets of the reports and bulletins of the United States Agricultural Department, the Geological Survey, the Fish Commission, the Smithsonian Institution, the National Museum, the Bureau of Ethnology, the Bureau of Education, the Labor Bureau, the Census Bureau and the Bureau of American Republics. There are also nearly completed sets of the Consular Reports, Special Consular Reports, the Engineers' Reports of the United States Army, the War of the Rebellion Records and Messages and Documents, besides many other miscellaneous publications of great value. Many valuable State publications are also on file.

It is the aim of the Librarian to render all these valuable works available for easy reference by the students.

Grateful acknowledgment is made to the officers of all the departments and bureaus above noted for their publications, and especially to the United States Superintendent of Documents, through whose aid many public documents have been received. Thanks are likewise due the following for valuable additions to the Library: Johns Hopkins University, the Geological Survey, the Weather Service, the Highway Commission, and the Bureau of Statistics and Information. Special thanks are due the county press for their liberality in sending their publications free to the Library.

YOUNG MEN'S CHRISTIAN ASSOCIATION.

MR. DARROW.

Aims.

Service, first, last and all the time is the aim of the Y. M. C. A. It attempts nothing through selfish motives, but through the desire to turn into right channels a boy's surplus energy.

Nature.

The Maryland Agricultural College Association is affiliated with the International Y. M. C. A. and membership in the local branch carries with it a welcome to all city and student associations, and during vacation periods, entitles the holder to many of the privileges of the city Y. M. C. A.

Officers.

For the first time a salaried secretary is in charge of the Y. M. C. A. organization. He works through and with a student cabinet, having a President, Vice-President, Recorder, Treasurer, and chairmen of the following committees: Employment, Membership, Social Affairs, Music, Publications and Bible Study.

The Employment Committee assists students in finding the kind of work they want, acting as a clearing house to employer and employee.

The Membership Chairman's duties are as the title indicates. The Social Chairman plans receptions, banquets, and social affairs affording a pleasant evening's entertainment to all. The Music Chairman obtains special music for Sunday and other meetings, and the Publications Chairman keeps the public informed.

Regular Meetings.

The Bible Study Chairman organizes bible and special problem study classes, and endeavors to interest the student in unselfish ideals.

Special speakers on both popular and religious subjects, are provided for Sunday 3:30 meetings. The proximity to Washington makes it possible to obtain the best of talent, Representatives, Government officials, worth while business men, and Ministers of power, thus making the meetings of great value.

Location.

The Y. M. C. A. is located in Calvert Hall. It has beautiful quarters; a game room, furnished with all kinds of games, a pool room, a reading and writing room, and an office for the Secretary. A good readable line of books having a sane, helpful, moral tone make the reading room attractive.

New Students.

Receptions are given to get the new men acquainted with the student body and with the members of the faculty, so as to make them feel "at home."

New students are given special attention, warned of dangers and guided to harmless but interesting methods of "letting off steam" without scorching their moral fibre.

A handbook is published, giving the student detailed information about the College, its societies and activities. Upon request it will be mailed to you free of charge.

The Association welcomes at all times suggestions for its betterment and extension of its service.

COURSES OF STUDY.

In order to systematize the work of the different departments of the College, and as far as possible arrange for specialization within limits consistent with the normal development of individual students, several distinct courses of study have been prepared, one of which the student is expected to choose upon entering the regular College work.

These courses are Agricultural Education, Agronomy, Animal Husbandry, Horticulture, Biology, Chemistry, Canning, General Science, Civil Engineering, Electrical Engineering, Mechanical Engineering, Rural Engineering, and Engineering Education.

A continuous and progressive course of work, beginning in the Freshman Year, with a nearly uniform course for all students, and gradually separating in the three succeeding years until the class work is almost wholly specialized, has been found to be most satisfactory. A broad and liberal foundation in English, mathematics and history is laid in the Freshman and Sophomore Years, and then the particular line of study desired is emphasized more and more until the end of the course.

In addition to the regular collegiate courses, two-year courses are given in Agriculture and Horticulture.

There is also a Course in Sub-Collegiate Instruction for the benefit of students unable to obtain elsewhere adequate preparation for entrance into the Freshman Class.

Short Winter Courses in Agriculture, Horticulture and Engineering are given for the benefit of those who find it impossible to afford the time necessary for an extended course in these subjects.

The Agricultural College, in co-operation with the State Department of Education, conducts a six-weeks' SUMMER SCHOOL, beginning this year on June 21st.

The purpose of the SUMMER SCHOOL is to provide a course of vocational training for teachers and prospective teachers of rural and graded schools. The work offered this year includes courses in Elementary Agriculture, Domestic Science and Art, Industrial Hand Work, Theory and Practice of Teaching, History of Mary-

land, State and National Constitutions, Chemistry, Physics, Surveying, Botany, Zoology and Entomology

A bulletin giving a full description of the courses is issued by the College. For full information address the Director of the Summer School.

A SUMMER SCHOOL for MINISTERS will be held from July 26th to August 3rd for those who wish to broaden their field of service in the communities in which they labor. Courses will be given in Rural Sociology, Rural Economics, Religious Pedagogy and Agriculture. Further information concerning these courses may be obtained from Professor F. B. Bomberger, Dean of the Division of Rural Economics and Sociology.

A CONFERENCE on COUNTRY LIFE will be held for MINISTERS on August 4th, 5th and 6th. Leaders of national reputation will present matters of vital interest to the Church. Bulletins containing complete information concerning this Conference may be obtained upon request from Mr. B. H. Darrow, Secretary of the Young Men's Christian Association.

In the tabular statements of the courses the periods per week are given, the numbers in parenthesis denoting practical or laboratory periods, the others theoretical or recitation periods.

AGRICULTURAL EDUCATION COURSE.

The Course in Agricultural Education is arranged to give the student a broad general knowledge of agriculture, languages, science and pedagogy.

Students taking this course receive practically the same work during the first two years as those of the other agricultural courses. In the Junior and Senior Years the agricultural work is continued, in addition to the special work in pedagogy and practice teaching which these students receive. Enough of agriculture is included in the course to enable the student to carry on farm operations in a scientific manner. The graduate is fitted not only to teach and supervise the teaching of agricultural subjects, but to manage school demonstration farms or conduct a farm of his own.

Agricultural Education Course.

Subject.	Term. I	Term. II	Term. III
Freshman Year.			
Mathematics 404	(2)	.....	.....
Trigonometry 406	.....	5	.....
English 224	4(2)	4(2)	4(2)
History 161	3*	3*	3*
Latin 341	3*	3*	3*
German 360	3**	3**	3**
French 380	3**	3**	3**
Agronomy 20	.....	1	1(2)
Breeds and Scoring 40	1(4)	.....	.....
Pomology 260	.....	.....	(2)
Vegetable Gardening 280	.....	(2)	.....
Landscape Gardening 300	1(2)	.....	.....
Botany 61	.....	.....	2(4)
Zoology 240	2(4)	.....	.....
Chemistry 81	.....	4(2)	4(2)
Freehand Drawing 420	(4)	.....	.....
Mechanical Drawing 421	(4)	.....	.....
Woodwork 424	.....	.....	(4)
Farm Buildings 426	.....	(4)	.....
Military Drill	(5)	(5)	(5)
Junior Year.			
English Literature 228	2	2	.....
Advanced Composition 229	1(2)	1(2)	1
Public Speaking 230	(2)	(2)	(2)
Civil Government 140	3	3	.....
Business Law 141	.....	.....	3
Logic 1	.....	.....	2
Psychology 2	3	.....	.....
History of Education 3	.....	5	.....
Principles of Education 4	.....	.....	4
Breeds 40	2(2)	.....	.....
Principles of Breeding 42	3	.....	.....
Animal Nutrition 43	.....	4	2(4)
Stock Judging 44	.....	.....	1(4)
Practical Small Fruit Culture 254	.....	2(4)	.....
Plant Materials 306	.....	.....	2(2)
Economic Entomology 243	2(4)	.....	.....
Organic Chemistry 88	4	.....	.....
Bacteriology 101	.....	(8)	.....
Surveying 126	.....	.....	2(4)
Military Drill	(5)	(5)	(5)

Subject.	Term. I	Term. II	Term. III
Sophomore Year.			
Composition 225	1(2)	1(2)	1(2)
Public Speaking 226	(2)	(2)	(2)
American Literature 227	2	2	.....
English Literature 228	.....	.....	2
German 361	3*	3*	3*
French 381	3*	3*	3*
Soils 21	2(4)	2(4)	.....
Fertilizers 22	.....	2(4)	.....
Farm Crops 23	.....	.....	2(4)
Live Stock Management 41	2(4)	.....	.....
Vegetable Growing 281	.....	.....	1(4)
Ornamentation of Home Grounds 301	.....	.....	(4)
Plant Histology 63	1(6)	.....	.....
Plant Physiology 64	.....	1(6)	.....
Entomology 242	.....	.....	2(4)
Chemistry 81	3(4)	.....	.....
Qualitative Analysis 83	.....	1(8)	.....
Quantitative Analysis 84	.....	.....	1(6)
Military Drill	(5)	(5)	(5)
Senior Year.			
Composition 233	1	1	1
Political Economy 143	4	4	4
Secondary Education 5	3(2)	.....	.....
Organization and Materials 6	.....	3(2)	.....
Rural Organization 7	.....	.....	3(2)
Farm Machinery 25	2(4)	.....	.....
Agronomy 26	2(2)	.....	.....
Grain Judging 27	.....	(4)	.....
Farm Management 28	.....	.....	2(4)
Dairying 45	.....	2(4)	.....
Poultry 47	.....	2	.....
Animal Diseases 481	.....	5(6)	.....
Systematic Pomology 267	2(2)	.....	.....
Floriculture 315	.....	.....	2(2)
Farm Forestry 320	.....	.....	2(4)
Agricultural Chemistry 92	4	.....	.....
Agricultural Analysis 98	.....	.....	(4)
Practical Problems 127	(4)	.....	.....
Research and Thesis 8	.....	.....	1 (4)
Military Drill	(5)	(5)	(5)

*Courses marked with asterisks are alternative.

AGRONOMY COURSE.

The four-year Course in Agronomy is designed to fit the graduate for conducting practical operations on the farm, or, should taste or circumstances so direct, to prosecute successfully advanced scientific research along the lines of agronomy, or if occasion requires, to act as county demonstrators or advisers. With these ends in view, the Course has been made at once comprehensive and tech-

nical. It is comprehensive enough to include whatever is necessary for the complete development of the work, yet technical enough to make the student feel that he is a specialist and equipped for special work.

Agronomy Course.

Subject.	Term. I	Term. II	Term. III
Freshman Year.			
Mathematics 404	(2)	....	.....
Trigonometry 406	.....	5	.....
English 224	4(2)	4(2)	4(2)
History 161	3*	3*	3*
Latin 341	3*	3*	3*
German 360	3**	3**	3**
French 380	3**	3**	3**
Agronomy 20	.....	1	1(2)
Breeds and Scoring 40	1(4)	.....	.....
Pomology 260	.....	.....	(2)
Vegetable Gardening 280	.....	(2)	.....
Landscape Gardening 300	1(2)	.....	.....
Botany 61	.....	.....	2(4)
Zoology 240	2(4)	.....	.....
Chemistry 81	.....	4(2)	4(2)
Freehand Drawing 420	(4)	.....	.....
Mechanical Drawing 421	(4)	.....	.....
Woodwork 424	.....	.....	(4)
Farm Buildings 426	.....	(4)	.....
Military Drill	(5)	(5)	(5)
Junior Year.			
English Literature 228	2	2	.....
Advanced Composition 229	1(2)	1(2)	1
Public Speaking 230	(2)	(2)	(2)
Civil Government 140	3	3	.....
Business Law 141	.....	.....	3
Logic 1	.....	.....	2
German 362	3*	3*	3*
French 382	3*	3*	3*
Crop Production 24	2(4)	.....	.....
Principles of Breeding 42	3	.....	.....
Animal Nutrition 43	.....	4(2)	.....
Stock Judging 44	.....	.....	1(4)
Anatomy & Physiology 480	.....	3	.....
Vegetable Pathology 70	.....	.....	2(4)
Geology 87	2(2)	2	.....
Organic Chemistry 88	4	.....	.....
Bacteriology 101	.....	(8)	(8)
Surveying 126	.....	.....	2(4)
Military Drill	(5)	(5)	(5)

Subject.	Term. I	Term. II	Term. III
Sophomore Year.			
Composition 225	1(2)	1(2)	1(2)
Public Speaking 226	(2)	(2)	(2)
American Literature 227	2	2	.....
English Literature 228	.....	.....	2
German 361	3*	3*	3*
French 381	3*	3*	3*
Soils 21	2(4)	2(4)	.....
Fertilizers 22	.....	2(4)	.....
Farm Crops 23	.....	.....	2(4)
Live Stock Management 41	2(4)	.....	.....
Plant Histology 63	1(6)	.....	.....
Plant Physiology 64	.....	1(6)	2(4)
Entomology 242	.....	.....	2(4)
Chemistry 81	3(4)	.....	.....
Qualitative Analysis 83	.....	1(8)	.....
Quantitative Analysis 84	.....	.....	1(8)
Military Drill	(5)	(5)	(5)
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
Senior Year.			
Composition 233	1	1	1
Political Economy 143	4	4	4
Psychology 2	4	.....	.....
History of Education 3	.....	4	.....
Farm Machinery 25	2(4)	.....	.....
Agronomy 26	2(2)	.....	3(4)
Farm Management 28	.....	.....	2(4)
Dairying 45	.....	2(4)	.....
Animal Diseases 481	.....	5(6)	.....
Plant Breeding 272	.....	2	2(2)
Farm Forestry 320	.....	.....	2(4)
Agricultural Chemistry 92	4	.....	.....
Practical Problems 127	(4)	.....	.....
Research and Thesis 29	1(4)	(4)	2(4)
Military Drill	(5)	(5)	(5)
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....

*Courses marked with asterisks are alternative.

ANIMAL HUSBANDRY COURSE.

The purpose of the Course in Animal Husbandry is to fit the graduate to carry out successfully the operations pertaining to general farming, to become an expert in the raising and feeding of live

stock, to pursue scientific investigations along lines pertaining to animal husbandry, or to act in the capacity of an adviser or demonstrator in rural communities. Therefore, the curriculum has been

Animal Husbandry Course.

Subject.	Term.		
	I	II	III
Freshman Year.			
Mathematics 404	(2)	.....	.....
Trigonometry 406	.....	5	.....
English 224	4(2)	4(2)	4(2)
History 161	3*	3*	3*
Latin 341	3*	3*	3*
German 360	3**	3**	3**
French 380	3**	3**	3**
Agronomy 20	.....	1	1(2)
Breeds and Scoring 40	1(4)	.....	.....
Pomology 260	.....	.....	(2)
Vegetable Gardening 280	.....	(2)	.....
Landscape Gardening 300	1(2)	.....	.....
Botany 61	.....	.....	2(4)
Zoology 240	2(4)	.....	.....
Chemistry 81	.....	4(2)	4(2)
Freehand Drawing 420	(4)	.....	.....
Mechanical Drawing 421	(4)	.....	.....
Woodwork 424	.....	.....	(4)
Farm Buildings 426	.....	(4)	.....
Military Drill	(5)	(5)	(5)
Junior Year.			
English Literature 228	2	2	.....
AdvancedComposition 229	1(2)	1(2)	1
Public Speaking 230	(2)	(2)	(2)
Civil Government 140	3	3	.....
Business Law 141	.....	.....	3
Logic 1	.....	.....	2
German 362	3*	3*	3*
French 382	3*	3*	3*
Breeds and Scoring 40	2(4)	.....	.....
Principles of Breeding 42	3	.....	.....
Animal Nutrition 43	.....	4(2)	2(4)
Stock Judging 44	.....	.....	1(4)
Anatomy &Physiology 480	.....	3	.....
Geology 87	2(2)	2	.....
Organic Chemistry 88	4	.....	.....
Bacteriology 101	.....	(8)	(8)
Surveying 126	.....	.....	2(4)
Military Drill	(5)	(5)	(5)

Subject.	Term.		
	I	II	III
Sophomore Year.			
Composition 225	1(2)	1(2)	1(2)
Public Speaking 226	(2)	(2)	(2)
American Literature 227	2	2	.....
English Literature 228	.....	.....	2
German 361	3*	3*	3*
French 381	3*	3*	3*
Soils 21	2(4)	2(4)	.....
Fertilizers 22	.....	2(4)	.....
Farm Crops 23	.....	.....	2(4)
Live Stock Management 41	2(4)	.....	.....
Plant Histology 63	1(6)	.....	.....
Plant Physiology 64	.....	1(6)	2(4)
Entomology 242	.....	.....	2(4)
Chemistry 81	3(4)	.....	.....
Qualitative Analysis 83	.....	1(8)	.....
Quantitative Analysis 84	.....	.....	1(8)
Military Drill	(5)	(5)	(5)
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
Senior Year.			
Composition 233	1	1	1
Political Economy 143	4	4	4
Psychology 2	4	.....	.....
History of Education 3	.....	4	.....
Farm Machinery 25	2(4)	.....	.....
Farm Management 28	.....	.....	2(4)
Animal Nutrition 43	3(4)	.....	3(2)
Dairying 45	.....	2(4)	.....
Poultry 47	.....	2	.....
Animal Diseases 481	.....	5(6)	.....
Farm Forestry 320	.....	.....	2(4)
Animal Parasites 253	.....	.....	2(4)
Agricultural Chemistry 92	4	.....	.....
Research and Thesis 48	1(4)	(4)	2(4)
Military Drill	(5)	(5)	(5)
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....

* Courses marked with asterisks are alternative.

outlined to include, in addition to the subjects necessary for the development of a specialist in animal husbandry, those which will give a broad training in agriculture and other cultural branches.

TWO-YEAR AGRICULTURAL COURSE.

A large number of young men seeking to better themselves in their chosen profession of farming are calling for instruction in those courses pertaining to practical agriculture. Many of them have neither the time nor means at hand to take the full four-year Course, but while away in school they wish to gain the greatest possible amount of instruction and assistance which is particularly applicable to the farm. They realize that the farm can no longer be run in the old-time haphazard way, that there is a demand for skill and the highest order of intelligence to make a success on the farm, as in any other line of human endeavor, and that brains must be

Two-Year Agricultural Course.

Subject.	Term.			Subject.	Term.		
	I	II	III		I	II	III
First Year.				Second Year.			
Farm Arithmetic 400	3	.....	.....	Farm Literature 222	(2)	(2)	(2)
Farm Accounts 401	.....	.....	(4)	Composition 223	1	1	1
English 220	5	5	5	Business Law 142	.....	3	.....
Farm Literature 222	(2)	(2)	(2)	Fertilizers 22	.....	2(4)	.....
Soils 21	.....	.....	3(6)	Crop Production 24	3(4)	.....	2(2)
Farm Crops 23	.....	.....	2(4)	Grain Judging 27	.....	2(4)	.....
Farm Machinery 25	2(4)	.....	.....	Farm Management 28	2(2)	.....	.....
Breeds and Scoring 40	1(4)	.....	.....	Principles of Breeding 42	3	.....	.....
Poultry 49	.....	2	.....	Animal Nutrition 43	2	2	.....
Pomology 260, 261	2(4)	2(4)	.....	Stock Judging 44	(4)	.....	.....
Practical Small Fruit Culture 264	.....	.....	2(2)	Dairying 45	.....	.....	2(4)
Vegetable Gardening 280	.....	1(4)	.....	Stock Feeding 46	.....	(4)	.....
Home Grounds 300	2(2)	.....	.....	Animal Diseases 482	.....	2(4)	.....
Seeds and Weeds 60	(4)	.....	.....	Commercial Pomology 263	2(2)	.....	.....
Farm Botany 62	.....	.....	2(4)	Vegetable Growing 282	2	.....	.....
Farm Zoology 248	.....	2	.....	Market Gardening 285	.....	.....	(4)
Farm Water Systems 132	.....	1(2)	.....	Farm Forestry 320	.....	.....	2(4)
Drawing 422	.....	(4)	.....	Plant Diseases 69	.....	.....	2(2)
Farm Woodwork 425	.....	(4)	.....	Insect Pests 250	.....	.....	2(4)
Farm Buildings 426	.....	(4)	.....	Farm Chemistry 80	2(2)	2(2)	2(2)
Military Drill	(5)	(5)	(5)	Dairy Bacteriology 100	.....	(2)	.....
				Military Drill	(5)	(5)	(5)

planted with each little seed, and also put into the feeding trough for the animal. To meet the demand for instruction along these lines, and for a better understanding of the underlying principles of successful agriculture, a short course of two years has been provided.

It embraces much of the technical work of the four-year Course, and is especially designed to lay a foundation that will secure success in practical farming, which, as it must be conducted today, is a

union of many interests. To enter this Course a working knowledge of arithmetic, including fractions, mensuration and percentage, and a common-school training in English is required. Upon completion of this Course a certificate is granted.

SHORT WINTER COURSES.

For men and women who can spare from one to ten weeks only from their home duties the College offers a series of short courses occupying from one to two weeks each, beginning after the Christmas vacation.

For 1916 the arrangement will be:

First week—Soils and Fertilizers.

Second week— { Farm Crops. / Domestic Science.

Third week—Poultry Husbandry.

Fourth and fifth weeks—Horticulture.

Sixth week—Horses and Beef Cattle.

Seventh week—Swine and Sheep Husbandry.

Eighth week—Dairy Husbandry.

Ninth week—Farm Implements and Motors.

Tenth week—Farm Carpentry, Blacksmithing and Pipe Fitting.

Experience has demonstrated the advantage of dividing the work into short periods, during which time the attention of the student is engrossed wholly with one subject. It enables the student to concentrate his efforts and affords opportunity for those who are interested in but one or two subjects, such as poultry husbandry or domestic science, for example, to take what they desire with the greatest economy of time.

No charge is made to short course students for the use of laboratories. Good board at moderate rates can be secured in the neighborhood. For more detailed information regarding these courses, write for bulletin and folders.

HORTICULTURAL COURSE.

Through the organization of the Division of Horticulture an opportunity is presented for students in the four-year Course to spe-

Horticultural Course.

Subject.	Term. I	Term. II	Term. III
Freshman Year.			
Mathematics 404	(2)	.....	.....
Trigonometry 406	.....	5	.....
English 224	4(2)	4(2)	4(2)
History 161	3*	3*	3*
Latin 341	3*	3*	3*
German 360	3**	3**	3**
French 380	3**	3**	3**
Agronomy 20	.....	1	1(2)
Breeds and Scoring 40	1(4)	.....	.....
Pomology 261	.....	.....	(2)
Vegetable Gardening 280	.....	(2)	.....
Landscape Gardening 300	1(2)	.....	.....
Botany 61	.....	.....	2(4)
Zoology 240	2(4)	.....	.....
Chemistry 81	.....	4(2)	4(2)
Freehand Drawing 420	(4)	.....	.....
Mechanical Drawing 421	(4)	.....	.....
Woodwork 424	.....	.....	(4)
Farm Buildings 426	.....	(4)	.....
Military Drill	(5)	(5)	(5)
Junior Year.			
English Literature 228	2	2	.....
Advanced Composition 229	1(2)	1(2)	1
Public Speaking 230	(2)	(2)	(2)
Civil Government 140	3	3	.....
Business Law 141	.....	.....	3
Logic 1	.....	.....	2
German 362	3*	3*	3*
French 382	3*	3*	3*
Commercial Pomology 263	2(2)‖	.....	.....
Practical Small Fruit Culture 264	.....	2(4)‖	.....
Practical Pomology 265	.....	2(4)‖	2(2)‖
Commercial Small Fruit Culture 266	.....	.....	2(4)‖
Vegetable Growing 282	1(4)‡	2(8)‡	(6)‡
Vegetable Culture 283	.....	2‡	2‡
Vegetable Culture 284	.....	.....	2‡
Greenhouse Management 302	2(2)§	.....	.....
Floral Decoration 303	.....	(2)§	.....
Floriculture 304	.....	2(4)§	2(4)§
Greenhouse Construction 305	.....	2(2)§	.....
Plant Materials 306	.....	.....	2(2)§
Vegetable Pathology 70	.....	.....	2(4)
Economic Entomology 243	2(4)	.....	.....
Geology 87	2(2)	2	.....
Organic Chemistry 88	4	.....	.....
Bacteriology 101	.....	(8)	.....
Surveying 126	.....	.....	2(4)
Military Drill	(5)	(5)	(5)
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....

Subject.	Term. I	Term. II	Term. III
Sophomore Year.			
Composition 225	1(2)	1(2)	1(2)
Public Speaking 226	(2)	(2)	(2)
American Literature 227	2	2	.....
English Literature 228	.....	.....	2
German 361	3*	3*	3*
French 381	3*	3*	3*
Soils 21	2(4)	2(4)	.....
Fertilizers 22	.....	2(4)	.....
Farm Crops 23	.....	.....	2(4)
Principles of Pomology 261	2(4)	.....	.....
Principles of Small Fruit Culture 262	.....	2(2)	.....
Vegetable Growing 281	.....	.....	1(4)
Ornamentation of Home Grounds 301	.....	2	(4)
Plant Histology 63	1(6)	.....	.....
Plant Physiology 64	.....	1(6)	2(4)
Entomology 242	.....	.....	2(4)
Chemistry 81	3(4)	.....	.....
Military Drill	(5)	(5)	(5)
Senior Year.			
Composition 233	1	1	1
Political Economy 143	4	4	4
Psychology 2	4	.....	.....
Farm Machinery 25	2(4)	.....	.....
Practical Pomology 265	.....	1(6)‖	.....
Systematic Pomology 267	2(4)‖	1(4)‖	.....
Viticulture 268	2(2)‖	.....	.....
Literature of Fruit Growing 269	.....	1(2)‖	.....
Nut Culture 270	.....	2(2)‖	.....
Citrus and Subtropical Fruits 271	.....	3‖	.....
Plant Breeding 272	.....	2‖	2(2)‖
Advanced Small Fruit Culture 273	.....	.....	2(2)‖
Advanced Pomology 274	.....	.....	2(2)‖
Market Gardening 285	2(6)‡	6(12)‡	(6)‡
Experimental Vegetable Culture 286	.....	.....	2(4)‡
Tree Surgery 307	1(4)§	.....	.....
Landscape Design 308	2(6)§	.....	.....
Civic Art 309	.....	2(2)§	.....
Planting Plans 310	.....	2(6)§	.....
Aesthetics of Landscape Gardening 311	.....	2§	.....
Landscape Practice 312	.....	2(8)§	.....
Landscape Gardening 313	.....	.....	2§
Garden Flowers 314	.....	.....	2(4)§
Farm Forestry 320	.....	.....	2(4)
Applied Entomology 252	.....	.....	2(4)
Agricultural Chemistry 92	4	.....	.....
Research and Thesis 275.	(2)‖	(6)‖	(6)‖
Research and Thesis 287.	1(4)‡	2(12)‡	1(8)‡
Research and Thesis 316.	.....	2(4)§	(12)§
Military Drill	(5)	(5)	(5)

*Courses marked with asterisks are alternative.
‖For students specializing in Pomology.
‡For students specializing in Vegetable Culture.
§For students specializing in Landscape Gardening and Floriculture.

cialize in either pomology, vegetable culture or landscape gardening and floriculture.

These courses are designed to fit the student for conducting practical operations in horticulture on the farm, or to continue scientific research work and teaching in his chosen field. Practical work is made a prominent feature of the course. In the Freshman and Sophomore Years the work is not materially different from that of the Agricultural and Biological Courses, as all students are required to take certain fundamental subjects. In the Junior and Senior Years the courses become specialized.

The College and Experiment Station farm, orchards, greenhouses, etc., together with the close proximity of the Institution to the United States Department of Agriculture greenhouses and experiment farms, offer unusual opportunities to the students in horticulture.

TWO-YEAR HORTICULTURAL COURSE.

The two-year Course in Horticulture is intended for young men who wish to devote their efforts to fruit and vegetable growing, or

Two-Year Horticultural Course.

Subject.	Term. I	Term. II	Term. III
First Year.			
Farm Arithmetic 400	3	.....	.....
Farm Accounts 401	.....	.....	(4)
English 220	5	5	5
Farm Literature 222	(2)	(2)	(2)
Soils 21	.....	.....	3(6)
Farm Crops 23	.....	.....	2(4)
Farm Machinery 25	2(4)	.....	.....
Breeds and Scoring 40	1(4)	.....	.....
Poultry 47	.....	2	.....
Pomology 260, 261	2(4)	2(4)	.....
Practical Small Fruit Culture 264	.....	.....	2(2)
Vegetable Gardening 280	.....	1(4)	.....
Home Grounds 300	2(2)	.....	.....
Seeds and Weeds 60	(4)	.....	.....
Farm Botany 62	.....	.....	2(4)
Farm Zoology 248	.....	2	.....
Farm Water Systems 132	.....	1(2)	.....
Farm Drawing 422	.....	(4)	.....
Farm Woodwork 425	.....	(4)	.....
Farm Buildings 426	.....	(4)	.....
Military Drill	(5)	(5)	(5)
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....

Subject.	Term. I	Term. II	Term. III
Second Year.			
Farm Literature 222	(2)	(2)	(2)
Composition 223	1	1	1
Business Law 142	.....	3	.....
Fertilizers 22	.....	2(4)	.....
Farm Management 28	2(2)	.....	.....
Stock Judging 44	(4)	.....	.....
Stock Feeding 46	.....	(4)	.....
Animal Diseases 482	.....	2(4)	.....
Commercial Pomology 263	2(2)	.....	.....
Nut Culture 270	.....	2	.....
Vegetable Growing 282	2(4)	(4)	.....
Vegetable Culture 284	2	.....	.....
Market Gardening 285	.....	.....	(4)
Greenhouse Management 302	2(2)	.....	.....
Floriculture 304	.....	.....	2(4)
Greenhouse Construction 305	2(2)	.....	.....
Plant Materials 306	.....	.....	2(2)
Farm Forestry 320	.....	.....	2(4)
Plant Diseases 69	.....	.....	2(2)
Spraying 249	.....	2(2)	.....
Insect Pests 250	.....	.....	2(4)
Farm Chemistry 80	2(2)	2(2)	2(2)
Military Drill	(5)	(5)	(5)

to commercial nursery or flower business, and who cannot afford the time required for a regular College course.

The Course is so arranged that the students will be given the fundamental work in horticulture and agriculture, and they can also specialize in their second year to some extent along the line of horticulture in which they are particularly interested. Courses in English, botany, entomology and chemistry are included in their work.

Upon the completion of the two years' work satisfactorily, the students are given a Certificate.

SHORT WINTER COURSE IN HORTICULTURE.

A two weeks' short Course in Horticulture is offered each winter to those who are unable to spend a longer time at the College. The Course is designed for practical men who can leave home for short periods during the winter. It consists of lectures on all phases of horticulture and practical demonstrations in spraying, packing, pruning, etc. For further particulars regarding Winter Courses, see page 91, special folders, etc.

BIOLOGICAL COURSE.

The Biological Course, while offering a general education and special training in the natural sciences, is outlined in particular for those who wish to specialize in some branch of botany or zoology. It aims to fit men for practical work in the field of plant pathology and entomology, but will also give training for special work in the pure sciences.

In addition, this Course is specially valuable in preparing students who wish to enter the medical profession, particularly those who expect to enter the highest grade medical schools, which require for entrance a four year collegiate course in sciences and languages. These students will be required to substitute organic chemistry for some subject given in the regular Biological Course.

There are many opportunities for scientific workers in connection with the Agricultural investigations of the Federal Government and of the State Experiment Stations, as well as in the State inspection

work, for which this Course gives training. In fact, it is now difficult to secure men trained for such work. Full opportunity is given for the student to develop his natural resources and to learn to do

Biological Course.

Subject.	Term. I	Term. II	Term. III
Freshman Year.			
Mathematics 404	(2)	.....	.....
Trigonometry 406	.....	5	.....
English 224	4(2)	4(2)	4(2)
History 161	3*	3*	3*
Latin 341	3*	3*	3*
German 360	3**	3**	3**
French 380	3**	3**	3**
Agronomy 20	.....	1	1(2)
Breeds and Scoring 40	1(4)	.....	.....
Pomology 260	.....	.....	(2)
Vegetable Gardening 280	.....	(2)	.....
Landscape Gardening 300	1(2)	.....	.....
Botany 61	.....	.....	2(4)
Zoology 240	2(4)	.....	.....
Chemistry 81	.....	4(2)	4(2)
Freehand Drawing 420	(4)	.....	.....
Mechanical Drawing 421	(4)	.....	.....
Woodwork 424	.....	.....	(4)
Farm Buildings 426	.....	(4)	.....
Military Drill	(5)	(5)	(5)
Junior Year.			
English Literature 228	2	2	.....
Advanced Composition 229	1(2)	1(2)	1
Public Speaking 230	(2)	(2)	(2)
Civil Government 140	3	3	.....
Business Law 141	.....	.....	3
Logic 1	.....	.....	2
German 362	3*	3*	3*
French 382	3*	3*	3*
Plant Morphology 65	(6)†	.....	.....
Economic Plants 66	.....	2(4)	.....
Seed Analysis 67	.....	1(4)†	.....
Micro Botany 68	.....	.....	2(4)†
Vegetable Pathology 70	.....	.....	2(4)
Botany 71	.....	.....	1(4)†
Economic Entomology 243	2(4)	.....	.....
Entomology 244	1(4)!	.....	.....
Zoology 245	1(6)	1(4)	.....
Systematic Entomology 246	.....	1(4)!	2(4)!
Entomology 247	.....	.....	1(4)!
Geology 87	2(2)	.....	.....
Bacteriology 101	.....	(8)	(8)
Military Drill	(5)	(5)	(5)

Subject.	Term. I	Term. II	Term. III
Sophomore Year.			
Physics 201	3(2)	3(4)	3(4)
Composition 225	1(2)	1(2)	1(2)
Public Speaking 226	(2)	(2)	(2)
American Literature 227	2	2	.....
English Literature 228	.....	.....	2
German 361	3*	3*	3*
French 381	3*	3*	3*
Farm Crops 23	.....	.....	2(4)
Plant Histology 63	1(6)	.....	.....
Plant Physiology 64	.....	1(6)	2(4)
Zoology 241	2(4)	2(4)	.....
Entomology 242	.....	.....	2(4)
Chemistry 81	3(4)	.....	.....
Qualitative Analysis 83	.....	1(6)	.....
Military Drill	(5)	(5)	(5)
Senior Year.			
Composition 233	1	1	1
Political Economy 143	4	4	4
Psychology 2	4	.....	.....
German 362	.....	4*	4*
French 382	.....	4*	4*
Botany 72	4(6)†	4(6)†	4(6)†
Entomology 251	4(6)!	4(6)!	4(6)!
Botany 72 or Entomology 251	3(6)	3(6)	3(6)
Research and Thesis 73, 254	1(4)	1(4)	1(4)
Military Drill	(5)	(5)	(5)

*Courses marked with asterisks are alternative.
†For students specializing in Botany.
!For students specializing in Entomology.

work on his own responsibility. A large part of his time is spent in both practical and theoretical biological studies, without neglect-

ing the cultural studies which are a necessary foundation for every specialist.

CHEMICAL COURSE.

The Course in Chemistry is essentially the same as the other science courses until the second term of the Sophomore Year, though any of the four-year courses would prepare for this, as the amount of chemistry is the same in all courses to the beginning of the Second

Chemical Course.

Subject.	Term. I	II	III
Freshman Year.			
Mathematics 404	(2)	.....	.....
Solid Geometry 405	4	.....	.....
Trigonometry 406	.....	5	.....
Algebra 407	.....	.....	3
English 224	4(2)	4(2)	4(2)
History 161	3*	3*	3*
Latin 341	3*	3*	3*
German 360	3**	3**	3**
French 380	3**	3**	3**
Agronomy 20	.....	1	1(2)
Vegetable Gardening 280	.....	(2)	.....
Botany 61	.....	.....	2(4)
Zoology 240	2(4)	.....	.....
Chemistry 81	.....	4(2)	4(2)
Freehand Drawing 420	(4)	.....	.....
Mechanical Drawing 421	(2)	(4)	.....
Woodwork 424	(4)	.....	.....
Military Drill	(5)	(5)	(5)
Junior Year.			
English Literature 228	2	2	.....
AdvancedComposition 229	1(2)	1(2)	1
Public Speaking 230	(2)	(2)	(2)
Civil Government 140	3	3	.....
Business Law 141	.....	.....	3
Logic 1	.....	.....	2
German 362	3*	3*	3*
French 382	3*	3*	3*
Micro Botany 68	.....	.....	2(4)
Geology 87	2(2)	2	.....
Stoichiometry 89	1	1	1
Quantitative Analysis 90	1(12)	1(10)	1(8)
Organic Chemistry 91	3	3(4)	3(4)
Military Drill	(5)	(5)	(5)

Subject.	Term. I	II	III
Sophomore Year.			
Physics 201	3(2)	3(4)	3(4)
Composition 225	1(2)	1(2)	1(2)
Public Speaking 226	(2)	(2)	(2)
American Literature 227	2	2	.....
English Literature 228	.....	.....	2
German 361	3*	3*	3*
French 381	3*	3*	3*
Plant Histology 63	1(6)	.....	.....
Plant Physiology 64	.....	1(6)	.....
Zoology 241	2(4)	2(4)	.....
Chemistry 81	3(4)	.....	.....
Qualitative Analysis 82	.....	(8)	1(8)
Theoretical Chemistry 85	.....	.....	2
Mineralogy 86	.....	.....	1(4)
Electricity and Magnetism 181	.....	.....	2
Military Drill	(5)	(5)	(5)
Senior Year.			
Composition 233	1	1	1
Political Economy 143	4	4	4
Agricultural Chemistry 92	4	.....	.....
Agricultural Analysis 93	(20)	.....	.....
Physiological Chemistry 94	4(4)	.....	.....
Physical Chemistry 95	.....	5(16)	.....
Inorganic Chemistry 96	.....	3	3
Industrial Chemistry 97	.....	.....	5
Agricultural Analysis 98	.....	.....	(12)
Bacteriology 102	.....	(8)	(8)
Research and Thesis 99	.....	.....	(4)
Military Drill	(5)	(5)	(5)
.....	.....	.....	.....

*Courses marked with asterisks are alternative.

Term of the Sophomore Year, and the demands on the agricultural or technical chemist are now so varied that a foundation with more of the essentials of the agricultural or the engineering courses is often desirable.

Beginning with the Second Term of the Sophomore Year the major part of the student's time is devoted to chemistry, the practical work in the laboratory occupying approximately half of his time. The Course is essentially a course in agricultural chemistry, fitting the graduate for positions in agricultural colleges, experiment stations and the United States Department of Agriculture.

CANNING COURSE.

The great importance of the canning industry in Maryland; the fact that it is, to a great extent, an agricultural industry, and the further fact that the suggestion of a Course has met with so many hearty indorsements from prominent canners, has caused the College

Canning Course.

Subject.	Term. I	Term. II	Term. III
Freshman Year.			
Mathematics 404	(2)	.....	.....
Solid Geometry 405	4	.....	.....
Trigonometry 406	.....	5	.....
English 224	4(2)	4(2)	4(2)
History 161	3*	3*	3*
Latin 341	3*	3*	3*
German 360	3**	3**	3**
French 380	3**	3**	3**
Agronomy 20	.....	1	1(2)
Vegetable Gardening 280	.....	(2)	.....
Pomology 260	.....	.....	(2)
Botany 61	.....	.....	2(4)
Zoology 240	2(4)	.....	.....
Chemistry 81	.....	4(2)	4(2)
Freehand Drawing 420	(4)	.....	.....
Mechanical Drawing 421	(2)	(4)	.....
Woodwork 424	(4)	.....	(4)
Military Drill	(5)	(5)	(5)
Junior Year.			
English Literature 228	2	2	.....
AdvancedComposition 229	1(2)	1(2)	1
Public Speaking 230	(2)	(2)	(2)
Civil Government 140	3	3	.....
Business Law 141	.....	.....	3
Logic 1	.....	.....	2
Vegetable Growing 282	.....	1(4)	.....
Vegetable Culture 284	.....	.....	2
Micro Botany 68	.....	.....	2(4)
Vegetable Pathology 70	.....	.....	2(4)
EconomicEntomology 243	2(4)	.....	.....
Quantitative Analysis 90	1(6)	.....	.....
Organic Chemistry 91	3	3(4)	.....
Bacteriology 101	.....	(8)	(8)
Canning Technology	2(4)	3(4)	3(2)
Electric Laboratory 185	(4)	.....	.....
Military Drill	(5)	(5)	(5)
Sophomore Year.			
Physics 201	3(2)	3(4)	.....
Composition 225	1(2)	1(2)	1(2)
Public Speaking 226	(2)	(2)	(2)
American Literature 227	2	2	.....
English Literature 228	.....	.....	2
German 361	3*	3*	3*
French 381	3*	3*	3*
Soils 21	2(4)	2(4)	.....
Farm Crops 23	.....	.....	2(4)
Vegetable Growing 281	.....	.....	1(4)
Plant Histology 63	1(6)	.....	.....
Plant Physiology 64	.....	1(6)	.....
Entomology 242	.....	.....	2(4)
Chemistry 81	3(4)	.....	.....
Qualitative Analysis 82	.....	(8)	1(6)
Electricity and Magnetism 181	.....	.....	2
Military Drill	(5)	(5)	(5)
Senior Year.			
Composition 233	1	1	1
Political Economy 143	4	4	4
Viticulture 268	2	.....	.....
Plant Breeding 272	.....	2	2(2)
Advanced Pomology 274	.....	.....	2(2)
Market Gardening 285	2(6)	(12)	(6)
Agricultural Chemistry 92	4	.....	.....
Agricultural Analysis 93	(4)	.....	.....
Physical Chemistry 95	.....	(12)	.....
Agricultural Analysis 98	.....	.....	(8)
Canning Technology	3(4)	4(4)	5(4)
Practical Problems 127	(4)	.....	.....
Military Drill	(5)	(5)	(5)
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....

*Courses marked with asterisks are alternative.

authorities to establish a Course in Canning, in order that young men interested may have an opportunity to become acquainted with the underlying sciences, and at the same time secure a liberal education.

During the first two years of the Course the studies will not differ much from those of the other courses. After this a large part of the student's time will be occupied with sciences relating directly to the canning industry, such as bacteriology, chemistry, agriculture, horticulture, and canning technology. This latter will cover a wide range and will include the theory and practice of canning in various lines, experimental work, and lectures from persons of national reputation. Assistance in these lectures has been promised by officers of the National Canners' Association and others.

A canning expert is to be engaged to take charge of the technical instruction in canning, which will include both theoretical and laboratory work.

Routine and factory experience are expected to be gained by students spending at least two summers, usually devoted to vacation, in a canning factory.

GENERAL SCIENCE COURSE.

The General Science Course is offered to those young men who have not chosen as their vocation in life any of the technical professions, but who are seeking for such general culture as will fit them to become, after graduation, useful members of society. Young men desiring to study law, or medicine, or the liberal arts, or to become teachers, will find in the curriculum of this Course a highly satisfactory preparation for such work. While emphasis has been placed upon subjects, such as English, language, literature, history, mathematics, etc., the natural sciences occupy a prominent place in the Course and the range of electives beginning in the Junior Year will enable each to choose for himself, under certain necessary regulations, such a group of studies as will be best adapted to his own peculiar requirements.

General Science Course.

Subject.	Term. I	Term. II	Term. III
Freshman Year.			
Mathematics 404	(2)		
Solid Geometry 405	4		
Trigonometry 406		5	
English 224	4(2)	4(2)	4(2)
History 161	3	3	3
Latin 341	3	3	3
German 360	3*	3*	3*
French 380	3*	3*	3*
Vegetable Gardening 280		(2)	
Botany 61			2(4)
Zoology 240	2(4)		
Chemistry 81		4(2)	4(2)
Freehand Drawing 420	(4)		
Mechanical Drawing 421			(4)
Military Drill	(5)	(5)	(5)
Junior Year.			
English Literature 228	2	2	
Advanced Composition 229	1(2)	1(2)	1
Public Speaking 230	(2)	(2)	(2)
English 231	(2)	1(2)	
Public Speaking 232			1
Civil Government 140	3	3	
Business Law 141			3
History 163	3*	3*	3*
Logic 1			2
German 362	3*	3*	3*
French 382	3*	3*	3*
Principles of Breeding 44	3*		
Practical Small Fruit Culture 264		2(2)*	
Greenhouse Management 302	2(2)*		
Floriculture 304		2(2)*	2(4)*
Plant Morphology 65	(6)*		
Vegetable Pathology 70			2(4)*
Botany 71			1(4)*
Systematic Entomology 246		1(4)*	2(4)*
Geology 87	2(2)	2	
Organic Chemistry 88	4		
Quantitative Analysis 90	1(4)*	(6)*	(6)*
Bacteriology 101		(8)	(8)*
Surveying 126			2(4)
Military Drill	(5)	(5)	(5)

Subject.	Term. I	Term. II	Term. III
Sophomore Year.			
Physics 201	3(2)	3(4)	3(4)
Composition 225	1(2)	1(2)	1(2)
Public Speaking 226	(2)	(2)	(2)
American Literature 227	2	2	
English Literature 228			2
American History 162	4	4	3
Latin 342	4*	4*	4*
German 361	3*	3*	3*
French 381	3*	3*	3*
Principles of Pomology 261	2(4)*		
Plant Histology 63	1(6)*		
Plant Physiology 64		1(6)*	2(4)*
Zoology 241	2(4)*	2(4)*	
Entomology 242			2(4)*
Chemistry 81	3(4)		
Qualitative Analysis 83		1(6)	
Quantitative Analysis 84			1(8)
Military Drill	(5)	(5)	(5)
Senior Year.			
Composition 233	1	1	1
Public Speaking 234	4*	4*	4*
English Literature 235	4*	4*	4*
Political Economy 143	4	4	4
Political Science 144, 145 146	4*	4*	4*
Rural Economics 147	4*	4*	4*
Psychology 2	4		
History of Education 3		4	
Principles of Education 4			4
Secondary Education 5	3(2)*		
Organization and Materials 6		3(2*)	
Rural Organization 7			3(2)*
German 362	4*	4*	4*
French 382	4*	4*	4*
Dairying 47		2(4)*	
Landscape Design 308	2(4)*		
Planting Plans 310		2(4)*	
Garden Flowers 314			2(4)*
Farm Forestry 320			2(4)*
Agricultural Chemistry 92	4*		
Agricultural Analysis 98			(8)*
Military Drill	(5)	(5)	(5)

*Courses marked with asterisks are alternative. Students must elect from the alternative courses a sufficient number to cover with the required courses 25 periods of work. One election must be a modern language.

CIVIL ENGINEERING COURSE.

This Course offers a young man an opportunity to obtain training in civil engineering which will enable him to engage in practical engineering work in the field or in the drafting room with the assurance that he has the necessary preparation to profit by the

Civil Engineering Course.

Subject.	Term. I	Term. II	Term. III
Freshman Year.			
Mathematics 404	(2)	.....	.....
Solid Geometry 405	4	.....	.....
Trigonometry 406	.....	5	2
Algebra 407	.....	.....	3
English 224	4(2)	4(2)	4(2)
History 161	3	3	3
German 360	3*	3*	3*
French 380	3*	3*	3*
Chemistry 81	.....	4(2)	4(2)
Engineering Drawing 120	(4)	.....	.....
Surveying 121	.....	2	(4)
Freehand Drawing 420	(4)	.....	.....
Mechanical Drawing 421	(4)	(4)	(4)
Woodwork 424	(6)	.....	.....
Military Drill	(5)	(5)	(5)
Junior Year.			
Calculus 409	5	.....	.....
AdvancedComposition 229	1(2)	1(2)	1
Public Speaking 230	(2)	(2)	(2)
Civil Government 140	3	3	.....
Business Law 141	.....	.....	3
Logic 1	.....	.....	2
Geology 87	2(2)	2	.....
Engineerlng Drawing 120	(6)	(6)	(4)
Surveying 121	2(4)	.....	.....
Mechanics 122	4	.....	.....
Railway Engineering 123	.....	3	3
Structural Design 124	.....	2(4)	2(4)
Mechanics of Materials125	.....	3	5
Practical Problems 127	.....	.....	(8)
Graphic Statics 434	.....	4	.....
Military Drill	(5)	(5)	(5)
Sophomore Year.			
Analytics 408	5	3	.....
Calculus 409	.....	2	5
Physics 201	3(2)	3(4)	3(4)
Composition 225	1(2)	1(2)	1(2)
Public Speaking 226	(2)	(2)	(2)
German 361	3*	3*	3*
French 381	3*	3*	3*
Chemistry 81	3(4)	.....	.....
Mineralogy 86	.....	.....	1(4)
Surveying 121	(4)	4	2(4)
Descriptive Geometry 427	1(4)	2(6)	2
Military Drill	(5)	(5)	(5)
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
Senior Year.			
Composition 233	1	1	1
Political Economy 143	4	4	4
History of Education 3	.....	4*	.....
Principles of Education 4	.....	.....	4*
German 362	.....	4*	4*
French 382	.....	4*	4*
Practical Problems 127	(12)	(4)	(4)
Concrete 128	4	.....	.....
Hydraulics 129	3	5	.....
Estimates of Cost 130	.....	1(4)	(2)
Highway Engineering 131	.....	.....	5
Structural Design 435	2(4)	2(4)*	2(4)*
Mechanics of Eng. 436	3	4	4
Research and Thesis 133	.....	(4)	(8)
Military Drill	(5)	(5)	(5)
.....	.....	.....	.....

*Courses marked with asterisks are alternative.

experience thus afforded; or which will entitle him to advanced standing, if he desires to pursue a more extended course at a technical school of a higher grade. The curriculum, as outlined, includes not only studies having cultural value, but the sciences which form the basis of engineering. Students who have found themselves de-

ficient in ability to learn mathematics are not advised to enter an engineering course.

A thesis dealing with some problem in engineering will be required of all applicants for the degree of Bachelor of Science in Civil Engineering.

All engineering students in the Junior and Senior Classes are required to spend a portion of their time in the reading of the current engineering magazines.

ELECTRICAL ENGINEERING COURSE.

This Course was introduced because of the great demand for young men who are not only well trained in the practical construc-

Electrical Engineering Course.

Subject.	Term. I	Term. II	Term. III
Freshman Year.			
Mathematics 404	(2)	.....	.....
Solid Geometry 405	4	.....	.....
Trigonometry 406	.....	5	2
Algebra 407	.....	.....	3
English 224	4(2)	4(2)	4(2)
History 161	3	3	3
German 360	3*	3*	3*
French 380	3*	3*	3*
Chemistry 81	.....	4(2)	4(2)
Surveying 121	.....	.....	(4)
Freehand Drawing 420	(4)	.....	.....
Mechanical Drawing 421	(4)	(4)	(4)
Technical Instruction 423	2	.....	.....
Woodwork 424	(6)	(4)	.....
Military Drill	(5)	(5)	(5)
Junior Year.			
Calculus 409	5	.....	.....
AdvancedComposition 229	1(2)	1(2)	1
Public Speaking 230	(2)	(2)	(2)
Civil Government 140	3	3	.....
Business Law 141	.....	.....	3
Logic 1	.....	.....	2
Mechanics 122	4	.....	.....
Mechanics of Materials125	.....	3	5
Dynamos 183	3	4	3
Electrical Laboratory 184	(6)	(8)	(6)
Batteries 186	.....	.....	2
Electrical Design 187	.....	.....	(6)
Machine Design 432	(4)	(4)	.....
Machine Work 433	(4)	(4)	(4)
Graphic Statics 434	.....	4	.....
Military Drill	(5)	(5)	(5)

Subject.	Term. I	Term. II	Term. III
Sophomore Year.			
Analytics 408	5	3	.....
Calculus 409	.....	2	5
Physics 201	3(2)	3(4)	3(4)
Composition 225	1(2)	1(2)	1(2)
Public Speaking 226	(2)	(2)	(2)
German 361	3*	3*	3*
French 381	3*	3*	3*
Chemistry 81	3(4)	.....	.....
Electricity 180	.....	3(2)	3(2)
Descriptive Geometry 427	1(4)	2(6)	2
Blacksmithing 428	(4)	.....	.....
Steam Engines 431	.....	.....	3
Military Drill	(5)	(5)	(5)
.....	.....	.....	.....
.....	.....	.....	.....
Senior Year.			
Composition 233	1	1	1
Political Economy 143	4	4	4
Hydraulics 129	3	5	.....
Electric Design 187	(6)	.....	.....
Alternators 188	5	3	5
Electric Laboratory 189	(8)	(8)	(6)
Electric Lighting 190	3	.....	.....
Electric Power Plants 191	.....	3	.....
Telephones and Telegraphs 192	.....	2(2)	2(2)
Electric Design 193	.....	.....	1(6)
Electric Railways 194	.....	.....	3
Thermodynamics 437	2	.....	.....
Research and Thesis 195	.....	(4)	(4)
Military Drill	(5)	(5)	(5)
.....	.....	.....	.....

*Courses marked with asterisks are alternative.

tion and operation of electrical machines, but who have a thorough knowledge of the principles and laws controlling the phenomena and forces with which they have to deal.

The general plan of the Course is to make the student thoroughly acquainted with the scientific laws which are the basis of the profession, and at the same time to train him to adapt the laws to practice, to use his own judgment, and to apply honest and accurate methods in all his work.

The curriculum, as outlined, includes those studies which provide a broad general culture, as well as a good foundation for the engineering work which follows. From the beginning of the Second Term of the Sophomore Year the electrical training extends continuously throughout the Course.

MECHANICAL ENGINEERING COURSE.

The curriculum of the several years of this Course is outlined so as to give general culture as well as a proper foundation for the profession of Mechanical Engineer.

Young men not having a natural taste for mathematics and the handling of tools are advised not to pursue this Course. The practical work of this Course is most thorough. The student is familiarized from the first with the reading of engineering drawings and with the use of tools and implements used in wood and iron work. He is given daily practice in the shops and is encouraged to develop whatever inventive talent he may have. Results have shown that students completing this Course have no difficulty in securing employment immediately upon graduation in the field of mechanics or mechanical engineering.

Mechanical Engineering Course.

Subject.	Term. I	Term. II	Term. III
Freshman Year.			
Mathematics 404	(2)	.....	.....
Solid Geometry 405	4	.....	.....
Trigonometry 406	.....	5	2
Algebra 407	.....	.....	3
English 224	4(2)	4(2)	4(2)
History 161	3	3	3
German 360	3*	3*	3*
French 380	3*	3*	3*
Chemistry 81	.....	4(2)	4(2)
Freehand Drawing 420	(4)	.....	.....
Mechanical Drawing 421	(4)	(4)	(4)
Technical Instruction 423	2	.....	.....
Woodwork 424	(6)	(4)	(4)
Military Drill	(5)	(5)	(5)
Junior Year.			
Calculus 409	5	.....	.....
AdvancedComposition 229	1(2)	1(2)	1
Public Speaking 230	(2)	(2)	(2)
Civil Government 140	3	3	.....
Business Law 141	.....	.....	3
Logic 1	.....	.....	2
Mechanics 122	4	.....	.....
Mechanics of Materials 125	.....	3	5
Dynamos 182	3	4	.....
Electrical Laboratory 185	(4)	(4)	.....
Machine Design 432	1(4)	2(4)	3(8)
Machine Work 433	(4)	(4)	(12)
Graphic Statics 434	.....	4	.....
Military Drill	(5)	(5)	(5)

Subject.	Term. I	Term. II	Term. III
Sophomore Year.			
Analytics 408	5	3	.....
Calculus 409	.....	2	5
Physics 201	3(2)	3(4)	3(4)
Composition 225	1(2)	1(2)	1(2)
Public Speaking 226	(2)	(2)	(2)
German 361	3*	3*	3*
French 381	3*	3*	3*
Chemistry 81	3(4)	.....	.....
Descriptive Geometry 427	1(4)	2(6)	2
Blacksmithing 428	(4)	(4)	.....
Technical Mechanics 429	.....	2	.....
Foundry 430	.....	.....	(8)
Steam Engines 431	.....	.....	3
Military Drill	(5)	(5)	(5)
Senior Year.			
Composition 233	1	1	1
Political Economy 143	4	4	4
Psychology 2	4*	.....	.....
German 362	4*	.....	.....
French 382	4*	.....	.....
Structural Design 435	2(4)	2(4)	2(6)
Mechanics of Eng. 436	3	4	4
Thermodynamics 437	2	3	3
Heat and Ventilation 438	2(2)	.....	.....
Exp. Engineering 439	(8)	(8)	(4)
Hydromechanics 440	.....	3	.....
Research and Thesis 445	.....	(4)	2(8)
Military Drill	(5)	(5)	(5)
.....	.....	.....	.....

*Courses marked with asterisks are alternative,

RURAL ENGINEERING COURSE.

This Course is offered to students who wish to become proficient in such branches of engineering as relate in particular to the problems of rural communities. The broad training offered in engineering is supplemented by instruction in those agricultural subjects which will give the student a greater breadth of view concerning rural problems requiring the services of an engineer, and, if he should elect to settle in the country for the practice of his profession, will enable him to conduct his farming operations with pleasure and profit. The Course is open to students entering the Freshman or Sophomore Class in the Fall of 1915.

Rural Engineering Course.

Subject.	Term. I	II	III
Freshman Year.			
Mathematics 404	(2)	.....	.....
Solid Geometry 405	4	.....	.....
Trigonometry 406	.....	5	2
Algebra 407	.....	.....	3
English 224	4(2)	4(2)	4(2)
History 161	3	3	3
German 360	3*	3*	3*
French 380	3*	3*	3*
Chemistry 81	.....	4(2)	4(2)
Surveying 121	.....	2	(4)
Freehand Drawing 420	(4)	.....	.....
Mechanical Drawing 421	(4)	(4)	(4)
Technical Instruction 423	2	.....	.....
Woodwork 424	(6)	.....	.....
Military Drill	(5)	(5)	(5)
Junior Year.			
Calculus 409	5	.....	.....
Advanced Composition 229	1(2)	1(2)	1
Public Speaking 230	(2)	(2)	(2)
Civil Government 140	3	3	.....
Business Law 141	.....	.....	3
Logic 1	.....	.....	2
Crop Production 25	2(4)	.....	.....
Vegetable Growing 281	.....	.....	1(4)
Geology 87	2(2)	2	.....
Structural Design 124	.....	2(4)	2(4)
Mechanics of Materials 125	.....	3	5
Dynamos 182	3	4	.....
Electrical Laboratory 185	(4)	(4)	.....
Batteries 186	.....	.....	2
Blacksmithing 428	(4)	.....	.....
Machine Work 433	.....	.....	(8)
Graphic Statics 434	.....	4	.....
Military Drill	(5)	(5)	(5)

Subject.	Term. I	II	III
Sophomore Year.			
Analytics 408	5	3	.....
Calculus 409	.....	2	5
Physics 201	3(2)	3(4)	3(4)
Composition 225	1(2)	1(2)	1(2)
Public Speaking 226	(2)	(2)	(2)
German 361	3*	3*	3*
French 381	3*	3*	3*
Ornamentation of Home Grounds 301	.....	.....	(4)
Chemistry 81	3(4)	.....	.....
Surveying 121	(4)	4	2(4)
Descriptive Geometry 427	1(4)	2(6)	.....
Steam Engines 431	.....	.....	3
Military Drill	(5)	(5)	(5)
.....	.....	.....	.....
Senior Year.			
Composition 233	1	1	1
Political Economy 143	4	4	4
Soils 21	2(4)	2(4)	.....
Farm Machinery 25	2(4)	.....	.....
Farm Management 28	.....	.....	2(4)
Farm Forestry 320	.....	.....	2(4)
Practical Problems 127	(4)	.....	.....
Concrete 128	4	.....	.....
Hydraulics 129	3	5	.....
Highway Engineering 131	.....	.....	5
Electric Lighting 190	3	.....	.....
Telephones and Telegraphs 192	.....	2(2)	2(2)
Design of Farm Structures 441	.....	2(4)	2(4)*
Farm Machinery Design 442	.....	2(4)	2(4)*
Military Drill	(5)	(5)	(5)

*Courses marked with asterisks are alternative.

ENGINEERING EDUCATION COURSE.

A substantial demand for teachers of the Manual Arts who have had a broad training in engineering, has led to the establishment of this Course. In addition to the instruction in engineering, a thorough training in pedagogy is offered. Since the need for such teachers is felt in urban and in rural communities, some opportunity is given the student when he enters the Senior Class, to select those subjects in engineering which will best fit him for the solution of the problems of the community in which he wishes to practice his profession. The Course is open to students entering the Freshman or Sophomore Class in the Fall of 1915.

Engineering Education Course.

Subject.	Term. I	II	III
Freshman Year.			
Mathematics 404	(2)	.....	.....
Solid Geometry 405.	4	.....	.....
Trigonometry 406	.....	5	2
Algebra 407	.....	.....	3
English 224	4(2)	4(2)	4(2)
History 161	3	3	3
German 360	3*	3*	3*
French 380	3*	3*	3*
Chemistry 81	.....	4(2)	4(2)
Freehand Drawing 420....	(4)	.....	.....
Mechanical Drawing 421..	(4)	(4)	(4)
Technical Instruction 423.	2	.....	.....
Woodwork 424	(6)	(4)	(4)
Military Drill	(5)	(5)	(5)
Junior Year.			
Calculus 409	5	.....	.....
Advanced Composition 229	1(2)	1(2)	1
Public Speaking 230	(2)	(2)	(2)
Civil Government 140	3	3	.....
Business Law 141	.....	.....	3
Logic 1	.....	.....	2
Psychology 2	3	.....	.....
History of Education 3....	.....	5	.....
Principles of Education 4.	.....	.....	4
Mechanics 122	4	.....	.....
Mechanics of Materials 125	.....	3	5
Surveying 126	.....	.....	2(4)
Electricity 180	1(4)	.....	.....
Blacksmithing 428	.....	(4)	.....
Design 432	1(6)	2(6)	3(4)
Graphic Statics 434	.....	4	.....
Military Drill	(5)	(5)	(5)
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....

Subject.	Term. I	II	III
Sophomore Year.			
Analytics 408	5	3	.....
Calculus 409	.....	2	5
Physics 201	3(2)	3(4)	3(4)
Composition 225	1(2)	1(2)	1(2)
Public Speaking 226	(2)	(2)	(2)
German 361	3*	3*	3*
French 381	3*	3*	3*
Chemistry 81	3(4)	.....	.....
Electricity 180	.....	3(2)	3(2)
Descriptive Geometry 427.	1(4)	2(6)	2
Blacksmithing 428	(4)	.....	.....
Steam Engines 431	.....	.....	3
Military Drill	(5)	(5)	(5)
...	.....	.....	.....
Senior Year.			
Composition 233	1	1	1
Political Economy 143	4	4	4
Secondary Education 5....	3(2)	.....	.....
Organization and Materials 6	.....	3(2)	.....
Farm Machinery 25	2(4)*	.....	.....
Practical Problems 127....	(4)	.....	.....
Concrete 128	4*	.....	.....
Hydraulics 129	3	5	.....
Estimates of Costs 130....	.....	1(4)	1(6)
Highway Engineering 131.	.....	.....	5*
Telephones and Telegraphs 192	.....	2(2)	2(2)
Machine Work 433	(4)	(4)	(4)
Design 435	2(4)*	.....	.....
Heat and Ventilation 438 ..	2(2)	.....	.....
Exp. Engineering 439.....	(4)	.....	(4)
Hydromechanics 440	.....	3	.....
School Architecture 443....	.....	.....	3(4)*
Advanced Pattern Making 444	.....	.....	(8)
Military Drill	(5)	(5)	(5)

*Courses marked with asterisks are alternative.

SHORT WINTER COURSES IN ENGINEERING.

These courses are offered to those who for various reasons cannot attend the four year courses. They are thoroughly practical in their nature and exceedingly helpful when full advantage is taken of the instruction given. Folders giving the details of these courses will be sent upon request. The following short courses will be given in 1916:

One week's Course on the Building and Maintenance of Roads.

One week's Course on Farm Machinery and Motors.

One week's Course on Farm Carpentry, Blacksmithing, Pipe Fitting, and the Use of Concrete on the Farm.

SYNOPSIS OF COURSES.

The figures represent the number of periods per week, those in parenthesis indicating practical or laboratory periods; the others, theoretical or recitation periods.

Four Year Courses—1915-16.

Term and Subject.	Agriculture		Horticulture	Biology	Chemistry	Canning	General Science	Engineering				Education	
	Agronomy	Animal Husbandry						Civil	Electrical	Mechanical	Rural	Agricultural	Engineering
Freshman Year.													
I.													
Mathematics 404	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Solid Geometry 405	.....	.....	.....	.....	4	4	4	4	4	4	4	.....	4
English 224	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)
History 161	3*	3*	3*	3*	3*	3*	3	3	3	3	3	3*	3
Latin 341	3*	3*	3*	3*	3*	3*	3	.....	.....	.....	.....	3*	.....
German 360	3**	3**	3**	3**	3**	3**	3**	3**	3**	3**	3**	3**	3**
French 380	3**	3**	3**	3**	3**	3**	3**	3**	3**	3**	3**	3**	3**
Breeds and Scoring 40	1(4)	1(4)	1(4)	1(4)	.....	.....	.....	.....	.....	.....	.....	1(4)	.....
Landscape Gardening 300	1(2)	1(2)	1(2)	1(2)	.....	.....	.....	.....	.....	.....	.....	1(2)	.....
Zoology 240	2(4)	2(4)	2(4)	2(4)	2(4)	2(4)	2(4)	.....	.....	.....	.....	2(4)	.....
Engineering Drawing 120	.....	.....	.....	.....	.....	.....	.....	(4)	.....	.....	.....	.....	.....
Freehand Drawing 420	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)
Mechanical Drawing 421	(4)	(4)	(4)	(4)	(2)	(2)	.....	(4)	(4)	(4)	(4)	(4)	(4)
Technical Instruction 423	.....	.....	.....	.....	.....	.....	.....	.....	2	2	2	.....	2
Woodwork 424	.....	.....	.....	.....	(4)	(4)	.....	(6)	(6)	(6)	(6)	.....	(6)
Military Drill	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)
II.													
Trigonometry 406	5	5	5	5	5	5	5	5	5	5	5	5	5
English 224	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)
History 161	3*	3*	3*	3*	3*	3*	3	3	3	3	3	3*	3
Latin 341	3*	3*	3*	3*	3*	3*	3	.....	.....	.....	.....	3*	.....
German 360	3**	3**	3**	3**	3**	3**	3**	3**	3**	3**	3**	3**	3**
French 380	3**	3**	3**	3**	3**	3**	3**	3**	3**	3**	3**	3**	3**
Agronomy 20	1	1	1	1	1	1	.....	.....	.....	.....	.....	1	.....
Vegetable Gardening 280	(2)	(2)	(2)	(2)	(2)	(2)	(2)	.....	.....	.....	.....	(2)	.....
Chemistry 81	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)
Surveying 121	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	2	.....	.....
Mechanical Drawing 421	.....	.....	.....	.....	(4)	(4)	.....	(4)	(4)	(4)	(4)	.....	(4)
Woodwork 424	.....	.....	.....	.....	.....	.....	.....	.....	(4)	(4)	.....	.....	(4)
Farm Buildings 426	(4)	(4)	(4)	(4)	.....	.....	.....	.....	.....	.....	.....	(4)	.....
Military Drill	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)
III.													
Trigonometry 406	.....	.....	.....	.....	.....	.....	.....	2	2	2	2	.....	2
Advanced Algebra 407	.....	.....	.....	.....	3	.....	.....	3	3	3	3	.....	3
English 224	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)
History 161	3*	3*	3*	3*	3*	3*	3	3	3	3	3	3*	3
Latin 341	3*	3*	3*	3*	3*	3*	3	.....	.....	.....	.....	3*	.....
German 360	3**	3**	3**	3**	3**	3**	3**	3**	3**	3**	3**	3**	3**
French 380	3**	3**	3**	3**	3**	3**	3**	3**	3**	3**	3**	3**	3**
Agronomy 20	1(2)	1(2)	1(2)	1(2)	1(2)	1(2)	.....	.....	.....	.....	.....	1(2)	.....
Pomology 260	(2)	(2)	(2)	(2)	.....	(2)	.....	.....	.....	.....	.....	(2)	.....
Botany 61	2(4)	2(4)	2(4)	2(4)	2(4)	2(4)	2(4)	.....	.....	.....	.....	2(4)	.....
Chemistry 81	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)	4(2)
Surveying 121	.....	.....	.....	.....	.....	.....	.....	(4)	(4)	.....	(4)	.....	.....
Mechanical Drawing 421	.....	.....	.....	.....	.....	.....	(4)	(4)	(4)	(4)	(4)	.....	(4)
Woodwork 424	(4)	(4)	(4)	(4)	.....	(4)	.....	.....	.....	(4)	.....	(4)	(4)
Military Drill	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)

Four Year Courses—Continued.

Term and Subject.	Agriculture		Horticulture	Biology	Chemistry	Canning	General Science	Engineering				Education	
	Agronomy	Animal Husbandry						Civil	Electrical	Mechanical	Rural	Agricultural	Engineering
Sophomore Year.													
I													
Analytics 408	.....	.....	.....	.....	.....	.....	.....	5	5	5	5	.....	5
Physics 201	.....	.....	.....	3(2)	3(2)	3(2)	3(2)	3(2)	3(2)	3(2)	3(2)	.....	3(2)
Composition 225	1(2)	1(2)	1(2)	1(2)	1(2)	1(2)	1(2)	1(2)	1(2)	1(2)	1(2)	1(2)	1(2)
Public Speaking 226	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Am. Literature 227	2	2	2	2	2	2	2	.....	.....	.....	.....	2	.....
Am. History 162	.....	.....	.....	.....	.....	.....	4	.....	.....	.....	.....	.....	.....
Latin 342	.....	.....	.....	.....	.....	.....	4*	.....	.....	.....	.....	.....	.....
German 361	3*	3*	3*	3*	3*	3*	3*	3*	3*	3*	3*	3*	3*
French 381	3*	3*	3*	3*	3*	3*	3*	3*	3*	3*	3*	3*	3*
Soils 21	2(4)	2(4)	2(4)	.....	.....	2(4)	.....	.....	.....	.....	.....	2(4)	.....
Live Stock Mang't 41	2(4)	2(4)	.....	.....	.....	.....	.....	.....	.....	.....	.....	2(4)	.....
Prin. Pomology 261	.....	.....	2(4)	.....	.....	.....	2(4)*	.....	.....	.....	.....	.....	.....
Plant Histology 63	1(6)	1(6)	1(6)	1(6)	1(6)	1(6)	1(6)*	.....	.....	.....	.....	1(6)	.....
Zoology 241	.....	.....	.....	2(4)	2(4)	.....	2(4)*	.....	.....	.....	.....	.....	.....
Chemistry 81	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)
Surveying 121	.....	.....	.....	.....	.....	.....	.....	(4)	.....	.....	(4)	.....	.....
Des. Geometry 427	.....	.....	.....	.....	.....	.....	.....	1(4)	1(4)	1(4)	1(4)	.....	1(4)
Blacksmithing 428	.....	.....	.....	.....	.....	.....	.....	.....	(4)	(4)	.....	.....	(4)
Military Drill	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)
II													
Analytics 408	.....	.....	.....	.....	.....	.....	.....	3	3	3	3	.....	3
Calculus 409	.....	.....	.....	.....	.....	.....	.....	2	2	2	2	.....	2
Physics 201	.....	.....	.....	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	3(4)	.....	3(4)
Composition 225	1(2)	1(2)	1(2)	1(2)	1(2)	1(2)	1(2)	1(2)	1(2)	1(2)	1(2)	1(2)	1(2)
Public Speaking 226	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Am. Literature 227	2	2	2	2	2	2	2	.....	.....	.....	.....	2	.....
Am. History 162	.....	.....	.....	.....	.....	.....	4	.....	.....	.....	.....	.....	.....
Latin 342	.....	.....	.....	.....	.....	.....	4*	.....	.....	.....	.....	.....	.....
German 361	3*	3*	3*	3*	3*	3*	3*	3*	3*	3*	3*	3*	3*
French 381	3*	3*	3*	3*	3*	3*	3*	3*	3*	3*	3*	3*	3*
Soils 21	2(4)	2(4)	2(4)	.....	.....	2(4)	.....	.....	.....	.....	.....	2(4)	.....
Fertilizers 22	2(4)	2(4)	2(4)	.....	.....	.....	.....	.....	.....	.....	.....	2(4)	.....
Prin. Small Fruit Culture 262	.....	.....	2(2)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Orn. Home Grounds 301	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Plant Physiology 64	1(6)	1(6)	1(6)	1(6)	1(6)	1(6)	1(6)*	.....	.....	.....	.....	1(6)	.....
Zoology 241	.....	.....	.....	2(4)	2(4)	.....	2(4)*	.....	.....	.....	.....	.....	.....
Qual. Analysis 82, 83	1(8)	1(8)	.....	1(6)	(8)	(8)	1(6)	.....	.....	.....	.....	1(8)	.....
Surveying 121	.....	.....	.....	.....	.....	.....	.....	4	.....	.....	4	.....	.....
Electricity 180	.....	.....	.....	.....	.....	.....	.....	.....	3(2)	.....	.....	.....	3(2)
Des. Geometry 427	.....	.....	.....	.....	.....	.....	.....	2(6)	2(6)	2(6)	2(6)	.....	2(6)
Blacksmithing 428	.....	.....	.....	.....	.....	.....	.....	.....	.....	(4)	.....	.....	.....
Tech. Mechanics 429	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	.....
Military Drill	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)

Four-Year Courses—Continued.

Term and Subject.	Agriculture		Horticulture	Biology	Chemistry	Canning	General Science	Engineering				Education	
	Agronomy	Animal Husbandry						Civil	Elcetrical	Mechanical	Rural	Agricultural	Engineering
Sophomore Year—Continued.													
III													
Calculus 409	.....	.....	.....	.....	.....	.....	.....	5	5	5	5	.....	5
Physics 201	.....	.....	.....	3(4)	3(4)	.....	3(4)	3(4)	3(4)	3(4)	3(4)	.....	3(4)
Composition 225	1(2)	1(2)	1(2)	1(2)	1(2)	1(2)	1(2)	1(2)	1(2)	1(2)	1(2)	1(2)	1(2)
Public Speaking 226	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
English Literature 228	2	2	2	2	2	2	2	.....	.....	.....	.....	2	.....
Am. History 162	.....	.....	.....	.....	.....	.....	3	.....	.....	.....	.....	.....	.....
Latin 342	.....	.....	.....	.....	.....	.....	4*	.....	.....	.....	.....	.....	.....
German 361	3*	3*	3*	3*	3*	3*	3*	3*	3*	3*	3*	3*	3*
French 381	3*	3*	3*	3*	3*	3*	3*	3*	3*	3*	3*	3*	3*
Farm Crops 23	2(4)	2(4)	2(4)	2(4)	.....	2(4)	.....	.....	.....	.....	.....	2(4)	.....
Vegetable Growing 281	.....	.....	1(4)	.....	.....	1(4)	.....	.....	.....	.....	.....	1(4)	.....
Orn. Home Grounds 301	.....	.....	(4)	.....	.....	.....	.....	.....	.....	.....	(4)	(4)	.....
Plant Physiology 64	2(4)	2(4)	2(4)	2(4)	.....	.....	2(4)*	.....	.....	.....	.....	.....	.....
Entomology 242	2(4)	2(4)	2(4)	2(4)	.....	2(4)	2(4)*	.....	.....	.....	.....	2(4)	.....
Qual. Analysis 82	.....	.....	.....	.....	1(8)	1(6)	.....	.....	.....	.....	.....	.....	.....
Quan. Analysis 84	1(8)	1(8)	.....	.....	.....	.....	1(8)	.....	.....	.....	.....	1(6)	.....
Theoretical Chemistry 85	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	.....
Mineralogy 86	.....	.....	.....	.....	1(4)	.....	.....	1(4)	.....	.....	.....	.....	.....
Surveying 121	.....	.....	.....	.....	.....	.....	.....	2(4)	.....	.....	2(4)	.....	.....
Electricity 180, 181	.....	.....	.....	.....	2	2	.....	.....	3(2)	.....	.....	.....	3(2)
Desc. Geometry 427	.....	.....	.....	.....	.....	.....	.....	2	2	2	.....	.....	2
Foundry 430	.....	.....	.....	.....	.....	.....	.....	.....	.....	(8)	.....	.....	.....
Steam Engines 431	.....	.....	.....	.....	.....	.....	.....	.....	3	3	3	.....	3
Military Drill	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)
Junior Year.													
I													
Psychology 2	.....	.....	.....	.....	.....		.....	.....	.....	.....		3	
Calculus 409	.....	.....	.....	.....	.....		.....	5	5	5		.....	
Eng. Literature 228	3	3	3	3	3		3	3	3	3		3	
English 232	.....	.....	.....	.....	.....		4*	.....	.....	.....		.....	
Eng. Comp. 229	1	1	1	1	1		1	1	1	1		1	
History 165	.....	.....	.....	.....	.....		4*	.....	.....	.....		.....	
Public Speaking 232	.....	.....	.....	.....	.....		4*	.....	.....	.....		.....	
Civics 140	3	3	3	3	3		3	3	3	3		3	
German 362	3	3	3	3	3		3	.....	.....	.....		.....	
French 380	.....	.....	.....	.....	.....		4	.....	.....	.....		.....	
Crop Production 24	3(4)	.....	.....	.....	.....		.....	.....	.....	.....		.....	
Farm Management 28	2	.....	.....	.....	.....		.....	.....	.....	.....		.....	
Breeds 40	.....	1(6)	.....	.....	.....		.....	.....	.....	.....		1(4)	
Breeding 42	.....	3	.....	.....	.....		.....	.....	.....	.....		3	
Com. Pomology 263	.....	.....	2(2)‖	.....	.....		.....	.....	.....	.....		.....	
Veg. Culture 282	.....	.....	2(2)‡	.....	.....		.....	.....	.....	.....		.....	
Landscape Gar. 311	.....	.....	2(2)§	.....	.....		2(2)*	.....	.....	.....		.....	
Plant Physiology 64	.....	.....	.....	(6)†	.....		.....	.....	.....	.....		.....	
Plant Morphology 65	.....	.....	2(4)	2(4)	.....		2(4)*	.....	.....	.....		.....	
Eco. Entomology 243	.....	.....	2(4)	2(4)	.....		2(4)*	.....	.....	.....		2(4)	
Entomology 244	.....	.....	.....	1(4)!	.....		.....	.....	.....	.....		.....	
Qual. Analysis 82,83	1(8)	1(8)	1(6)	1(6)	1(8)		1(6)	.....	.....	.....		(4)	
Chemistry 84	.....	.....	.....	.....	(4)		(4)*	.....	.....	.....		.....	
Theo. Chemistry 85	.....	.....	.....	.....	2		2*	.....	.....	.....		.....	
Org. Chemistry 88,91	3	3	.....	.....	3		3*	.....	.....	.....		3	
Mineralogy 86	.....	.....	.....	.....	1(4)		1(4)*	1(4)	.....	.....		.....	
Surveying 121	.....	.....	.....	.....	.....		.....	4(4)	.....	.....		.....	
Drawing 120	.....	.....	.....	.....	.....		.....	(8)	.....	.....		.....	
Dynamos 182, 183	.....	.....	.....	.....	.....		.....	.....	3	3		.....	
Elec. Lab. 184, 185	.....	.....	.....	.....	.....		.....	.....	(6)	(4)		.....	
Machine Design 432	.....	.....	.....	.....	.....		.....	.....	(4)	1(4)		.....	
Machine Work 433	.....	.....	.....	.....	.....		.....	.....	(4)	(4)		.....	
Steam Engines 431	.....	.....	.....	.....	.....		.....	.....	3	3		.....	
Military Drill	(5)	(5)	(5)	(5)	(5)		(5)	(5)	(5)	(5)		(5)	

Not offered in 1915-16

Not offered in 1915-16

Not offered in 1915-16

Four-Year Courses—Continued.

Term and Subject.	Agriculture		Horticulture	Biology	Chemistry	Canning	General Science	Engineering				Education	
	Agronomy	Animal Husbandry						Civil	Electrical	Mechanical	Rural	Agricultural	Engineering
Junior Year—Continued.													
II													
Hist. of Education 3.	.....	.....	.....	.....	.....		.....	.....	.....	.....		5	
Eng. Literature 228.	3	3	3	3	3		3	3	3	3		3	
English 232.	.....	.....	.....	.....	.....		4*	.....	.....	.....		.....	
Eng. Comp. 229.	1	1	1	1	1		1	1	1	1		1	
History 163.	.....	.....	.....	.....	.....		4*	.....	.....	.....		.....	
Public Speaking 232	.....	.....	.....	.....	.....		4*	.....	.....	.....		.....	
Civics 140.	3	3	3	3	3		3	3	3	3		3	
German 362.	3	3	3	3	3		3	.....	.....	.....		.....	
French 380.	.....	.....	.....	.....	.....		4	.....	.....	.....		.....	
Animal Nutrition 43	.....	4(2)	.....	.....	.....		.....	.....	.....	.....		4	
Anat. and Phys. 480	3	3	.....	.....	.....		.....	.....	.....	.....		.....	
Bacteriology 101, 102	(8)	(8)	(8)	(8)	(8)		(8)*	.....	.....	.....		(8)	
Small Fruits 262.	.....	.....	1(4)‖	.....	.....		1(4)*	.....	.....	.....		1(4)	
Prac. Pomology 265.	.....	.....	2(4)‖	.....	.....		.....	.....	.....	.....		.....	
Veg. Culture 283.	.....	.....	2‡	.....	.....		.....	.....	.....	.....		.....	
Veg. Culture 282.	.....	.....	1(8)‡	.....	.....		.....	.....	.....	.....		.....	
Floriculture 304.	.....	.....	2(4)§	.....	.....		2(4)*	.....	.....	.....		.....	
GreenhouseCons.305	.....	.....	2(2)§	.....	.....		.....	.....	.....	.....		.....	
Economic Plants 66.	2(4)	.....	2(4)	2(4)	.....		.....	.....	.....	.....		.....	
Seed Analysis 63.	.....	.....	.....	1(6)†	.....		.....	.....	.....	.....		.....	
Zoology 245.	.....	1(4)*	.....	1(4)	.....		1(4)*	.....	.....	.....		.....	
Sys. Entomology 246	.....	.....	.....	2(4)!	.....		.....	.....	.....	.....		.....	
Theo. Chemistry 85.	.....	.....	.....	.....	1		.....	.....	.....	.....		.....	
Quan. Analysis 84,90	1(6)	1(4)*	.....	.....	1(12)		1(6)*	.....	.....	.....		(4)	
Org. Chemistry 91.	.....	.....	.....	.....	3		3*	.....	.....	.....		.....	
Drawing 120.	.....	.....	.....	.....	.....		.....	(8)	.....	.....		.....	
Railway Eng. 123.	.....	.....	.....	.....	.....		.....	3	.....	.....		.....	
Struct Design 124.	.....	.....	.....	.....	.....		.....	2(4)	.....	.....		.....	
Mech. Materials 125.	.....	.....	.....	.....	.....		.....	3	3	3		.....	
Dynamos 182, 183.	.....	.....	.....	.....	.....		.....	.....	4	3		.....	
Elec. Lab. 184, 185.	.....	.....	.....	.....	.....		.....	.....	(6)	(4)		.....	
Machine Design 432.	.....	.....	.....	.....	.....		.....	.....	(4)	2(4)		.....	
Machine Work 433.	.....	.....	.....	.....	.....		.....	.....	(4)	(4)		.....	
Graphic Statics 434.	.....	.....	.....	.....	.....		.....	4	4	4		.....	
Military Drill.	(5)	(5)	(5)	(5)	(5)		(5)	(5)	(5)	(5)		(5)	
III													
Prin. of Education 4.	.....	.....	.....	.....	.....		.....	.....	.....	.....		4	
Logic 1.	2	2	2	2	2		2	2	2	2		2	
English 232.	.....	.....	.....	.....	.....		4*	.....	.....	.....		.....	
Eng. Comp. 229.	1	1	1	1	1		1	1	1	1		1	
History 163.	.....	.....	.....	.....	.....		4*	.....	.....	.....		.....	
Public Speaking 230	(2)	(2)	(2)	(2)	(2)		(2)	(2)	(2)	(2)		(2)	
Public Speaking 232	.....	.....	.....	.....	.....		4	.....	.....	.....		.....	
Business Law 141.	3	3	3	3	3		3	3	3	3		3	
German 362.	3	3	3	3	3		3	.....	.....	.....		.....	
French 381.	.....	.....	.....	.....	.....		3	.....	.....	.....		.....	
Farm Machinery 25.	2(4)	2(4)	2(4)	.....	.....		.....	.....	.....	.....		2(4)	
Dairying 45.	3	3(4)	.....	.....	.....		.....	.....	.....	.....		3(4)	
Animal Nutrition 43	.....	2(2)	.....	.....	.....		.....	.....	.....	.....		2(2)	
Small Fruits 264.	.....	.....	2(4)‖	.....	.....		2(4)*	.....	.....	.....		.....	
Prac. Pomology 265.	.....	.....	2(2)‖	.....	.....		.....	.....	.....	.....		.....	
Veg. Culture 283.	.....	.....	2‡	.....	.....		.....	.....	.....	.....		.....	
Veg. Culture 282.	.....	.....	1(4)‡	.....	.....		.....	.....	.....	.....		.....	
Veg. Culture 284.	.....	.....	2‡	.....	.....		.....	.....	.....	.....		.....	
Plant Materials 306.	.....	.....	2(4)§	.....	.....		2(4)*	.....	.....	.....		2	
Tree Surgery 307.	.....	.....	1(4)§	.....	.....		.....	.....	.....	.....		.....	
Micro Botany 68.	.....	.....	.....	2(4)†	2(4)		2(4)*	.....	.....	.....		.....	
Veg. Pathology 70.	2(4)	.....	2(4)	2(4)	.....		.....	.....	.....	.....		.....	
Botany 71.	.....	.....	.....	1(6)†	.....		.....	.....	.....	.....		.....	
Zoology 245.	.....	1(4)*	.....	1(4)	.....		.....	.....	.....	.....		.....	
Sys. Entomology 246	.....	.....	.....	2(4)!	.....		.....	.....	.....	.....		.....	
Entomology 247.	.....	.....	.....	1(6)!	.....		.....	.....	.....	.....		.....	
Theo. Chemistry 85.	.....	.....	.....	.....	1		.....	.....	.....	.....		.....	
Quan. Analysis 84,90	1(4)	1(4)*	.....	.....	.....		1(6)*	.....	.....	.....		.....	
Org. Chemistry 91.	.....	.....	.....	.....	3		.....	.....	.....	.....		.....	

Not offered in 1915-16

Not offered in 1915-16

Not offered in 1915-16

Not offered in 1915-16

Four-Year Courses—Continued.

Term and Subject.	Agriculture		Horticulture	Biology	Chemistry	Canning	General Science	Engineering				Education	
	Agronomy	Animal Husbandry						Civil	Electrical	Mechanical	Rural	Agricultural	Engineering
Junior Year—Continued.													
III—Continued.						Not offered in 1915-16					Not offered in 1915-16		Not offered in 1915-16
Chemistry 90	.....	.....	.....	.....	2(10)		2(4)*	.....	.....	.....		.....	
Drawing 120	.....	.....	.....	.....	.....		.....	(4)	.....	.....		.....	
Railway Eng. 123	.....	.....	.....	.....	.....		.....	3	.....	.....		.....	
Struct. Design 124	.....	.....	.....	.....	.....		.....	2(4)	.....	.....		.....	
Mech. Materials 125	.....	.....	.....	.....	.....		.....	5	5	5		.....	
Practical Prob. 127	.....	.....	.....	.....	.....		.....	(8)	.....	.....		.....	
Dynamos 183	.....	.....	.....	.....	.....		.....	.....	3	.....		.....	
Batteries 186	.....	.....	.....	.....	.....		.....	.....	2	.....		.....	
Elec. Lab. 184	.....	.....	.....	.....	.....		.....	.....	(6)	.....		.....	
Elec. Design 187	.....	.....	.....	.....	.....		.....	.....	(6)	.....		.....	
Machine Design 432	.....	.....	.....	.....	.....		.....	.....	.....	3(8)		.....	
Machine Work 433	.....	.....	.....	.....	.....		.....	.....	(4)	(12)		.....	
Research and Thesis	(2)	.....	.....	.....	.....		.....	.....	.....	.....		.....	
Military Drill	(5)	(5)	(5)	(5)	(5)		(5)	(5)	(5)	(5)		(5)	
Senior Year.													
I						Not offered in 1915-16					Not offered in 1915-16		Not offered in 1915-16
Secondary Ed. 5	.....	.....	.....	.....	.....		.....	.....	.....	.....		3(2)	
English 235	.....	.....	.....	.....	.....		4	.....	.....	.....		.....	
Psychology 2	4	4	4	4	4		4	.....	.....	4*		.....	
Eng. Comp. 233	1	1	1	1	1		1	1	1	1		1	
Economics 143	4	4	4	4	4		4	4	4	4		4	
Economics 147	.....	.....	.....	.....	.....		4*	.....	.....	.....		.....	
Civics 144	.....	.....	.....	.....	.....		4*	.....	.....	.....		.....	
Latin 343	.....	.....	.....	.....	.....		4*	.....	.....	.....		.....	
German 362	.....	.....	.....	.....	.....		4*	.....	.....	4*		.....	
French 382	.....	.....	.....	.....	.....		4*	.....	.....	.....		.....	
Agronomy 26	3(4)	.....	.....	.....	.....		.....	.....	.....	.....		3(4)	
Farm Management 28	2(4)	.....	.....	.....	.....		.....	.....	.....	.....		2(4)	
Dairying 45	.....	1(6)*	.....	.....	.....		.....	.....	.....	.....		.....	
Stock Judging 44	.....	(8)	.....	.....	.....		.....	.....	.....	.....		.....	
Animal Nutrition 43	.....	3(4)	.....	.....	.....		.....	.....	.....	.....		.....	
Nut Culture 270	.....	.....	2(2)‖	.....	.....		.....	.....	.....	.....		.....	
Sys. Pomology 267	.....	.....	2(4)‖	.....	.....		.....	.....	.....	.....		2(2)	
Small&VineFr'ts 268	.....	.....	2(2)‖	.....	.....		.....	.....	.....	.....		.....	
Veg. Culture 285	.....	.....	4(8)‡	.....	.....		.....	.....	.....	.....		.....	
Landscape Des. 308	.....	.....	2(4)§	.....	.....		2(4)*	.....	.....	.....		.....	
Civic Art 309	.....	.....	2(2)§	.....	.....		.....	.....	.....	.....		.....	
Landscape Gardening 313	.....	.....	2§	.....	.....		.....	.....	.....	.....		.....	
Botany 72	.....	.....	.....	4(6)†	.....		.....	.....	.....	.....		.....	
Entomology 251	.....	.....	.....	4(6)!	.....		.....	.....	.....	.....		.....	
Botany 72 or Entomology 251	.....	.....	.....	3(6)	.....		.....	.....	.....	.....		.....	
Quan. Analysis 84	(4)	(4)	.....	.....	.....		.....	.....	.....	.....		.....	
Agr. Chemistry 92	4	4*	4	.....	4		4*	.....	.....	.....		4	
Agr. Analysis 93	.....	.....	.....	.....	(24)		(8)*	.....	.....	.....		.....	
Hydraulics 129	.....	.....	.....	.....	.....		.....	3	3	.....		.....	
Concrete 128	.....	.....	.....	.....	.....		.....	4	.....	.....		.....	
Practical Prob. 127	.....	.....	.....	.....	.....		.....	(12)	.....	.....		.....	
Alternators 188	.....	.....	.....	.....	.....		.....	.....	5	.....		.....	
Elec. Lights 190	.....	.....	.....	.....	.....		.....	.....	3	.....		.....	
A.C. Laboratory 189	.....	.....	.....	.....	.....		.....	.....	(8)	.....		.....	
Elec. Design 187	.....	.....	.....	.....	.....		.....	.....	(6)	.....		.....	
Struct. Design 435	.....	.....	.....	.....	.....		.....	2(4)	.....	2(4)		.....	
Mech. of Eng. 436	.....	.....	.....	.....	.....		.....	3	.....	3		.....	
Thermodynamics 437	.....	.....	.....	.....	.....		.....	.....	2	2		.....	
Heat and Vent. 438	.....	.....	.....	.....	.....		.....	.....	.....	2(2)		.....	
Exp'mental Eng. 439	.....	.....	.....	.....	.....		.....	.....	.....	(8)		.....	
Research and Thesis	(2)	(2)	(4)‖ 1(6)‡ (6)§	1(4)	.....		.....	.....	.....	.....		.....	
Military Drill	(5)	(5)	(5)	(5)	(5)		(5)	(5)	(5)	(5)		(5)	

Four-Year Courses—Continued.

Term and Subject.	Agriculture		Horticulture	Biology	Chemistry	Canning	General Science	Engineering				Education	
	Agronomy	Animal Husbandry						Civil	Electrical	Mechanical	Rural	Agricultural	Engineering
Senior Year—Continued.													
II													
Org. and Mat. 6	.....	.....	.....	.....	.....	Not offered in 1915-16	.....	.....	.....	.....	Not offered in 1915-16	3(2)	Not offered in 1915-16
English 235	.....	.....	.....	.....	.....		4	.....	.....	.....		.....	
Pedagogics 3	4	4	4	4	4		4	4*	.....	.....		.....	
Eng. Comp. 233	1	1	1	1	1		1	1	1	1		1	
Economics 143	4	4	4	4	4		4	4	4	4		4	
Economics 147	.....	.....	.....	.....	.....		4*	.....	.....	.....		.....	
Civics 145	.....	.....	.....	.....	.....		4*	.....	.....	.....		.....	
Latin 343	.....	.....	.....	.....	.....		4*	.....	.....	.....		.....	
German 362	.....	.....	4	.....	.....		4*	4*	.....	.....		.....	
French 382	.....	.....	.....	.....	.....		4*	.....	.....	.....		.....	
Grain Judging 27	.....	.....	.....	.....	.....		.....	.....	.....	.....		(4)	
Poultry 47	.....	2	.....	.....	.....		.....	.....	.....	.....		2	
Bacteriology 101	(8)	(8)	.....	.....	.....		.....	.....	.....	.....		.....	
Animal Diseases 481	5(6)	5(6)	.....	.....	.....		.....	.....	.....	.....		5(6)	
Sys. Pomology 267	.....	.....	2(2)‖	.....	.....		.....	.....	.....	.....		.....	
Horticulture 269	.....	.....	1(2)‖	.....	.....		.....	.....	.....	.....		.....	
Plant Breeding 272	2	.....	2‖	.....	.....		.....	.....	.....	.....		2	
Veg. Culture 285	.....	.....	4(4)‡	.....	.....		.....	.....	.....	.....		.....	
Planting Plans 310	.....	.....	2(6)§	.....	.....		2(4)*	.....	.....	.....		.....	
Floral Dec. 303	.....	.....	(2)§	.....	.....		.....	.....	.....	.....		.....	
App. Entomology 252	.....	.....	2(4)	.....	.....		.....	.....	.....	.....		.....	
Botany 72	.....	.....	.....	4(6)†	.....		.....	.....	.....	....		.....	
Entomology 251	.....	.....	.....	4(6)!	.....		.....	.....	.....	.....		.....	
Botany 72 or Entomology 251	.....	.....	.....	3(6)	.....		.....	.....	.....	.....		.....	
Chemistry 95	.....	.....	.....	.....	(16)		.....	.....	.....	.....		.....	
Chemistry 94, 95, 96	.....	.....	.....	.....	6(4)		6(4)*	.....	.....	.....		.....	
Hydraulics 129	.....	.....	.....	.....	.....		.....	5	5	.....		.....	
Practical Prob. 127	.....	.....	.....	.....	.....		.....	(4)	.....	.....		.....	
Est. of Cost 130	.....	.....	.....	.....	.....		.....	1(4)	.....	.....		.....	
Alternators 188	.....	.....	.....	.....	.....		.....	.....	3	.....		.....	
Elec. Power 191	.....	.....	.....	.....	.....		.....	.....	3	.....		.....	
Tel. and Tel. 192	.....	.....	.....	.....	.....		.....	.....	2(2)	.....		.....	
A. C. Laboratory 189	.....	.....	.....	.....	.....		.....	.....	(8)	.....		.....	
Struct Design 435	.... .	.....	.....	.....	.....		.. .	2(4)*	.....	2(4)		.....	
Mech. of Eng. 436	.....	.....	.....	.....	.....		.....	4	.....	4		.....	
Thermodynamics 437	.....	.....	.....	.....	.....		.....	.....	.....	3		.....	
Hydromechanics 440	.....	.....	.....	.....	.....		.....	.....	.....	3		.....	
Exp'mental Eng. 439	.....	.....	.....	.....	.....		.....	.....	.....	(8)		.....	
Research and Thesis	(4)	(4)	(2)‖ (4)‡ (4)§	1(4)	.....		.....	(4)	(4)	(4)		(4)	
Military Drill	(5)	(5)	(5)	(5)	(5)		(5)	(5)	(5)	(5)		(5)	
III													
Rural Org. 7	.....	.....	.....	.....	.....	Not offered in 1915-16	.....	.....	.....	.....	Not offered in 1915-16	3(2)	Not offered in 1915-16
English 235	.....	.....	.....	.....	.....		4	.....	.....	.....		.....	
Pedagogics 4	4	4	4	4	4		4	4*	.....	.....		.....	
Eng. Comp. 233	1	1	1	1	1		1	1	1	1		1	
Economics 143	4	4	4	4	4		4	4	4	4		4	
Economics 147	.....	.....	.....	.....	.....		4*	.....	.....	.....		.....	
Civics 146	.....	.....	.....	.....	.....		4*	.....	.....	.....		.....	
Latin 343	.....	.....	.....	.....	.....		4*	.....	.....	.....		.....	
German 362	.....	.....	.....	.....	.....		4*	4*	.....	.....		.....	
French 382	.....	.....	.....	.....	.....		4*	.....	.....	.....		.....	
Agronomy 25	3(4)	.....	.....	.....	.....		.....	.....	.....	.....		.....	
Animal Nutrition 43	.....	2(2)	.....	.....	.....		.....	.....	.....	.....		.....	
Small Fruits 273	.....	.....	2(4)‖	.....	.....		.....	.....	.....	.....		.....	
Pomology 274	.....	.....	2(2)‖	.....	.....		.....	.....	.....	.....		.....	
Plant Breeding 272	2(2)	.....	2(2)‖	.....	.....		.....	.....	.....	.....		2(2)	
Veg. Culture 285	.....	.....	2(4)‡	.....	.....		.....	.....	.....	.....		(4)	
Veg. Culture 286	.....	.....	4(4)‡	.....	.....		.....	.....	.....	.....		.....	
Floriculture 314, 315	.....	.....	2§	.....	.....		.....	.....	.....	.....		2	
Landscape Prac, 312	.....	.....	2(8)§	.....	.....		2(4)*	.....	.....	.....		.....	
Farm Forestry 320	2(4)	2(4)	2(4)	.....	.....		.....	.....	.....	.....		2(4)	
Animal Parasites 253	.....	2(4)	.....	.....	.....		.....	.....	.....	.....		.....	

Four-Year Courses—Continued.

Term and Subject.	Agriculture		Horticulture	Biology	Chemistry	Canning	General Science	Engineering				Education	
	Agronomy	Animal Husbandry						Civil	Electrical	Mechanical	Rural	Agricultural	Engineering
Senior Year—Continued.													
III—Continued.						Not offered in 1915-16					Not offered in 1915-16		Not offered in 1915-16
Botany 72	.....	.....	.....	4(6)†	....		.....	.....	.....	.....		.....	
Entomology 251	.....	.....	.....	4(6)!	....		.....	.....	.....	.....		.....	
Botany 72 or Entomology 251	.....	.....	.....	3(6)	....		.....	.....	.....	.....		.....	
Chemistry 96, 97, 98	.....	.....	.....	.....	5(2)		5(6)*	.....	.....	.....		(4)	
Est. of Cost 130	.....	.....	.....	.....	....		.....	(2)	.....	.....		.....	
Highway Engineering 131	.....	.....	.....	....	....		.....	5	.....	.....		.....	
Practical Prob. 127	.....	.....	.....	.....	....		.....	(4)	.....	.....		.....	
Alternators 188	.....	.....	.....	.....	....		.....	.....	5	.....		.....	
Tel. and Tel. 192	.....	.....	.....	.....	....		.....	.....	2(2)	.....		.....	
Elec. Railways 194	.....	.....	.....	.....	....		.....	.....	3	.....		.....	
A.C. Laboratory 189	.....	.....	.....	.....	....		.....	.....	(6)	.....		.....	
Alt. Design 193	.....	.....	.....	.....	....		.....	.....	1(6)	.....		.....	
Struct. Design 435	.....	.....	.....	.....	....		.....	2(4)*	.....	2(6)		.....	
Mech. of Eng. 436	.....	.....	.....	.....	....		.....	4	.....	4		.....	
Thermodynamics437	.....	.....	.....	.....	....		.....	.....	.....	3		.....	
Exp'mental Eng. 439	.....	.....	.....	.....	....		.....	.....	.....	(4)		.....	
Research and Thesis	2(4)	3(4)	(4)‖ (4)‡ 2(4)§	1(4)	(20)		.....	(8)	(4)	2(8)		1(4)	
Military Drill	(5)	(5)	(5)	(5)	(5)		(5)	(5)	(5)	(5)		(5)	

*Courses marked with asterisks are alternative. Students must elect from the alternative courses a sufficient number to cover with the required courses 25 periods of work. Students in the General Science Course must elect one modern language.

‖For students specializing in Pomology.

‡For students specializing in Vegetable Culture.

§For students specializing in Landscape Gardening and Floriculture.

†For students specializing in Botany.

!For students specializing in Entomology.

Two-Year Courses.

First Year.		Second Year.			
Agriculture and Horticulture.		Agriculture.		Horticulture.	
TERM I.					
Farm Arithmetic 400.	3	Farm Literature 222..	(2)	Farm Literature 222.	(2)
English 220	5	Composition 223	1	Composition 223	1
Farm Literature 222..	(2)	Crop Production 24....	3(4)	Farm Management 28	2(2)
Farm Machinery 25...	2(4)	Farm Management 28	2(2)	Stock Judging 44	(4)
Breeds and Scoring 40	1(4)	Principles of Breeding 42	3	Commercial Pomology 263	2(2)
Pomology 260	2(4)	Animal Nutrition 43..	2	Vegetable Growing 282	2(4)
Home Grounds 300....	2(2)	Stock Judging 44	(4)	Vegetable Culture 284	2
Seeds and Weeds 60..	(4)	Commercial Pomology 263	2(2)	Greenhouse Man. 302.	2(2)
Military Drill	(5)	VegetableGrowing 282	2	Greenhouse Cons. 305	2(2)
		Farm Chemistry 80...	2(2)	Farm Chemistry 80 ..	2(2)
		Military Drill	(5)	Military Drill	(5)
TERM II.					
English 220	5	Farm Literature 222..	(2)	Farm Literature 222.	(2)
Farm Literature 222..	(2)	Composition 223	1	Composition 223	1
Poultry 47	2	Business Law 142	3	Business Law 142	3
Pomology 261	2(4)	Fertilizers 22	2(4)	Fertilizers 22	2(4)
Vegetable Gardening 280	1(4)	Grain Judging 27	2(4)	Stock Feeding 46	(4)
Farm Zoology 248	2	Animal Nutrition 43..	2	Animal Diseases 482.	2(4)
Farm Water Systems 132	1(2)	Stock Feeding 46	(4)	Nut Culture 270	2
Farm Drawing 422	(4)	Animal Diseases 482..	2(4)	Vegetable Growing 282	(4)
Farm Woodwork 425.	(4)	Farm Chemistry 80...	2(2)	Spraying 249	2(2)
Farm Buildings 426...	(4)	Dairy Bacteriology 100	(2)	Farm Chemistry 80..	2(2)
Military Drill	(5)	Military Drill	(5)	Military Drill	(5)
TERM III.					
Farm Accounts 401...	(4)	Farm Literature 222..	(2)	Farm Literature 222.	(2)
English 220	5	Composition 223	1	Composition 223	1
Farm Literature 222..	(2)	Crop Production 24...	2(2)	Market Gardening 285	(4)
Farm Crops 23	2(4)	Dairying 45	2(4)	Floriculture 304	2(4)
Soils 21	3(6)	Market Gardening 285	(4)	Plant Materials 306..	2(2)
Practical Small Fruit Culture 265	2(2)	Farm Forestry 320....	2(4)	Farm Forestry 320...	2(4)
Farm Botany 62	2(4)	Plant Diseases 69.....	2(2)	Plant Diseases 69...	2(2)
Military Drill	(5)	Insect Pests 250	2(4)	Insect Pests 250	2(4)
		Farm Chemistry 80...	2(2)	Farm Chemistry 80..	2(2)
		Military Drill	(5)	Military Drill	(5)

Sub-Collegiate Course.

Sub-Freshman Year.				Sub-Freshman Year.			
Subject.	Term.			Subject.	Term.		
	I	II	III		I	II	III
Algebra 402	4	4	4	General History 160	3	3	3
Plane Geometry 403	4	4	4	Latin 341	3	3	3
Physics 200	3	3	3	German 360	3*	3*	3*
English 220	5	5	5	French 380	3*	3*	3*
Public Speaking 221	(2)	(2)	(2)	Military Drill	(5)	(5)	(5)

*Courses marked with asterisks are alternative.
Lectures on Hygiene are given students in this Course.

GENERAL INFORMATION.

REQUIREMENTS FOR ADMISSION TO THE COLLEGE.

A candidate for admission to the College must present, together with his Scholastic Record, a certificate of good moral character; and if the candidate be from another school or college, the certificate must show that he left such institution in good standing.

METHOD OF ADMISSION.

There are two methods of gaining admission to the Freshman Class:

(1.) *By Certificate.*—The College will accept certificates from approved high schools of Maryland and the District of Columbia, and from accredited academies and preparatory schools of this State and of other States.

The certificates presented by the candidate must be officially certified by the Principal of the school attended. It must state in detail the work completed by the candidate and, if the candidate be from a Maryland high school, the certificate should state that the candidate has completed, at least, the tenth year of the course of study as outlined for Maryland schools by the State Board of Education.

All admissions by certificate are regarded as merely provisional. That is, while a student presenting a proper certificate is admitted to such standing as it shows him entitled to, he may be required to take a special examination or to do special work in any subject in which his preparation proves to be unsatisfactory; or if, after a fair trial, he fails to maintain a standing in the class to which he was admitted, he may be dropped to a lower class.

Blank certificates conveniently arranged for the desired data, will be sent upon application.

(2.) *By Examination.*—Candidates not admitted by certificate will be required to stand written examinations upon the entrance subjects. These examinations will be held for 1915 on June 9th and 10th, and September 14th and 15th.

Requirements for admission to the Freshman Class for the session of 1915-16 will be as follows:

Number of Units Required.—For the present, thirteen (13) units are required for entrance. This is equivalent to the completion of, at least, the tenth grade of the course of study as outlined for Maryland schools by the State Board of Education. A unit designates not less than four or five "periods" of classroom work or eight or ten "periods" of laboratory work per week, continued throughout the school year, each "period" being not less than forty minutes.

DISTRIBUTION OF THE REQUIRED UNITS.

Of the thirteen (13) units required for admission to the Freshman Class, eleven and one-half (11½) are specified as follows:

Group I	English	3 units		5½ required
	Mathematics	Algebra	1½ "	
		Plane Geometry	1 "	
Group II	American History and Civics	1 "		2 required
	English History	1 "		
	Ancient History	1 "		
	General History	1 "		
Group III	Latin	1 or 2 "		2 required
	German	1 or 2 "		
	French	1 or 2 "		
Group IV	Physics	1 "		2 required
	Chemistry	1 "		
	Botany	½ "		
	Physical Geography	½ "		
	Zoology	½ "		
	Physiology	½ "		
Group V	Shop Work	½ "		0 required
	Drawing	½ "		
	Special Agricultural Subjects	½ "		

The additional one and one-half (1½) units may be offered from Groups II, III, IV or V.

Deficiencies.—A deficiency of two units will be allowed a candidate as conditions, but such conditions must be removed by the end of the Scholastic Year in which the candidate is admitted.

SUGGESTIONS FOR PREPARATION IN THE REQUIRED SUBJECTS.

GROUP I.

ENGLISH.—Preparation in English has two main objects: (1), command of correct and clear English, spoken and written; (2), power to read with intelligence and appreciation.

To secure the first end, training in grammar and the simple principles of rhetoric and the writing of frequent compositions are essential. The candidate must be able to spell, capitalize and punctuate correctly. He must show a practical knowledge of the essentials of English grammar, including ordinary grammatical terminology, inflection, syntax, the use of phrases and clauses; a thorough training in the construction of the sentence; and familiarity with the simpler principles of paragraph division and structure.

To secure the second end the candidate is required to read the works named below under A and B. The list is intended to give the candidate the opportunity of reading, under intelligent direction, a number of important pieces of literature.

ENGLISH A. For reading and practice. (One and one-half units.) The candidate should read the works prescribed below with a view to understanding and enjoying them. He will be expected to show a reasonable degree of familiarity with their substance. The form of examination will usually be the writing of a paragraph or two on each of several topics, to be chosen by the candidate from a considerable number set before him in the examination paper.

FOR STUDENTS ENTERING IN 1915:

Shakespeare's "As You Like It" and "Julius Caesar"; Addison's "Sir Roger de Coverley Papers"; Scott's "Ivanhoe"; Goldsmith's "Vicar of Wakefield"; Irving's "Sketch Book"; Macaulay's "Lays of Ancient Rome"; Longfellow's "Evangeline"; Lowell's "Vision of Sir Launfal"; Poe's "Raven"; Eliot's "Silas Marner"; Gray's "Elegy Written in a Country Churchyard."

ENGLISH B. For study and practice. (One and one-half units.) The candidate should read the books presented below with

the view of acquiring such knowledge of their contents as will enable him to answer specific questions with accuracy and some detail. The examination is not designed, however, to require minute drill in difficulties of verbal expression, unimportant allusions and technical details.

FOR STUDENTS ENTERING IN 1915:

Shakespeare's "Macbeth"; Milton's "L'Allegro," "Il Penseroso," and "Comus"; Macaulay's Essay on Johnson or Carlyle's Essay on Burns; Washington's Farewell Address and Webster's First Bunker Hill Oration or Burke's Speech of Conciliation with America.

ALGEBRA TO QUADRATICS. (One unit.) As treated in the algebras of Wells, Wentworth, Tanner, Fine, or an equivalent. The four fundamental operations; factoring; highest common factor and least common multiple; fractions (including their conception as ratios) and complex fractions; powers and roots; the solution of linear equations, both numerical and literal, and of problems depending on linear equations; radicals and the theory of exponents; and the solution of simple second degree equations in one unknown quantity by factoring.

ALGEBRA FROM QUADRATICS. (One-half unit.) As treated in the algebras of Wells, Wentworth, Tanner, Fine, or an equivalent. Equations with one or more unknown quantities, to be solved by the methods of linear or quadratic equations; ratio, proportion and variation; variables and limits; properties of series, including the binomial theorem for positive integral exponents, and the formulas for the nth term and sum of the terms of arithmetical and geometrical progressions with applications; logarithms.

PLANE GEOMETRY. (One unit.) As treated by Wentworth, McMahon, Phillips and Fisher, or an equivalent. The usual theorems and constructions, including the general properties of plane rectilinear figures, the circle and measurement of angles, similar polygons, areas, regular polygons and the measurement of the circle; the solution of original exercises, including loci problems; and the application to the mensuration of lines and plane surfaces. The student should be able to prove every statement made, going back step by step until it rests upon primary definitions or axioms.

GROUP II.

American History. (One unit.) Channing's Student's History of the United States, McLaughlin's History of the American Nation, Hart's Essentials in American History, or an equivalent. The discovery, exploration and settlement of America; the colonial policy of England, culminating in the Revolution; the political, economic and social history of the United States since the adoption of the Constitution.

Ancient History to 300 A. D. (One unit.) If a single text book is used, it should be West's Ancient World, Wolfson's Essentials in Ancient History, Morey's Outlines of Ancient History, or an equivalent.

English History. (One unit.) Cheyney's A Short History of England, Andrew's History of England, Walker's Essentials in English History, Montgomery's English History, or an equivalent.

General History. (One unit.) Myer's, Fischer's or Colby's General History, or an equivalent.

The entrance examinations in History will be so framed as to require comparison and the use of the judgment, rather than the mere use of the memory.

GROUP III.

Elementary French. First Year. (One unit.) Aldrich and Foster's Foundations of French and French Reader, or their equivalents.

Second Year. (One unit.) Reading of four to five hundred pages of graduated texts.

Elementary German. First Year. (One unit.) Bacon's German Grammar, or an equivalent.

Second Year. (One unit.) Reading of about 300 pages of graduated texts.

Latin. First Year. (One unit.) First Latin Book completed.

Second Year. (One unit.) Three Books of Caesar, or an equivalent.

Forms and constructions needed in texts from Standard Latin Grammar. Prose based on texts.

GROUP IV.

PHYSICS. (One unit.) As much as is contained in the text-books of Carhart and Chute, Hall and Bergen, Gage's Elements of Physics, Avery's Elements of Natural Philosophy, or an equivalent.

BOTANY. (One unit.) As much as is contained in Gray's Lessons, Bailey's Elementary Botany, Bergen's Foundations, or an equivalent.

CHEMISTRY. (One unit.) Preparation should include the study of at least one standard text-book, to the end that the pupil may gain a comprehensive and connected view of the most important facts of elementary chemistry. The subjects should be attempted only in schools which possess an adequate equipment; laboratory work is essential and original notes must be submitted; more importance will attach to descriptive chemistry than to analytical, and the student should become as familiar as possible with the commonest non-metals and metals, as well as their simpler compounds.

PHYSICAL GEOGRAPHY. (One-half unit.) A study of the earth, atmosphere, waters and attendant phenomena; the distribution of both animal and vegetable life, and the various industries resulting from the development of the natural resources of the earth.

Text-books on Physical Geography by Gilbert, Davis, Fairbanks, Tarr, or an equivalent.

PHYSIOLOGY. (One-half unit.) The preparation should include the general facts of the anatomy, histology and physiology of the human body and the essentials of hygiene. A text-book, such as the first part of Hough and Sedgwick's The Human Mechanism, or an equivalent should be used in connection with charts and models.

ZOOLOGY. (One-half unit.) The preparation in Zoology should include a general knowledge of common animals of the locality with regard to their ecological relations; the general study of the animal forms such as the Amoeba, a ciliate, an earth worm, insect, frog and mammal. He should have some work in the general physiology of these types and a comparison of life processes in animals and plants. The student should have such general knowledge of the animal kingdom, the characteristics of the Phyla and principal classes of animals as is given in Davison's Practical Zoology.

GROUP V.

SHOPWORK. (One-half unit.) A candidate who offers shopwork as an entrance subject is asked to present a detailed statement from his instructor, setting forth the kind and amount of work done.

DRAWING. (One-half unit.) Candidate must present a detailed statement from his instructor showing the kind and amount of work done and submit drawings done by himself.

SPECIAL AGRICULTURAL SUBJECTS. (One-half unit.) This class includes nature studies and other allied subjects not specifically designated in Group IV.

FOR ADVANCED STANDING. Applicants for advanced standing in any course, in addition to satisfying the requirements for admission to the Freshman Class, must pass an examination in the studies which have been pursued by the class for which they are candidates. Work done at a standard college is accepted when properly certified and found on examination to be equivalent in extent and quality to that required at this College.

EXAMINATIONS FOR ADMISSION TO ANY HIGHER CLASS will be held at the College in June and September at the same times as examinations for admission to the Freshman Class.

CANDIDATES FOR THE SUB-FRESHMAN CLASS will be required to present certificates or to pass examinations in English grammar, arithmetic, algebra to quadratics, geography, physical geography, United States and English history, and first-year Latin.

Students from newly acquired territory or any foreign country must have a local guardian appointed with parental powers, with whom the President can deal in any case of emergency. Students who cannot speak English are not desired, and are advised that satisfactory progress at this College on their part cannot be achieved until they have familiarized themselves partly, at least, with the English language.

EXAMINATIONS AND PROMOTIONS.

In order to pass from one class to the next higher, a student is required to pass an examination in each study pursued, by a mark

of at least sixty per cent., and to have a combined mark in each branch (daily and examination) of at least seventy per cent.

A student will not be promoted if it is manifest that he cannot pursue successfully the advanced work.

REPORTS.

Detailed reports are sent to parents and guardians at the end of every quarter. These give the grade of the student in every branch of study, his attendance record and his conduct record with comment by the President upon each item.

In addition to this, monthly reports are issued for October, November, January, February and April. These give general information as to scholarship, conduct, attendance and health, and call attention to deficiency in any one of these particulars.

GRADUATION AND DEGREES.

Degrees are granted by the Board of Trustees upon the recommendation of the Faculty.

All applications for degrees must be approved by the Faculty.

BACHELOR OF SCIENCE.

As a requisite for graduation the candidate for this degree must have completed the work previously outlined, including a thesis.

The subject for this thesis must be approved prior to February 1st, by the head of the department in which the investigation is to be pursued, and the thesis must be submitted not later than May 15th.

MASTER OF SCIENCE.

The degree of Master of Science may be conferred as follows:

1. Upon persons who have taken the degree of Bachelor of Science in a recognized institution, and have pursued successfully at this College for one year a course of graduate study, satisfying the following requirements:

The course shall consist of a major subject and two minor subjects germane to the major subject and shall be approved by the professor in charge of the major subject.

At least one minor subject shall be in a different department from the major subject.

The course shall occupy not less than fifteen credit periods per term.

Not fewer than five credit periods per term shall be devoted to the minor subjects.

A thesis satisfactory to the professor in charge of the major subject shall be presented.

2. Upon college graduates of not less than two years' standing, who are employed in any of the departments of the College, including the Experiment Station, and who have completed the equivalent of the above course of study. Candidates under this clause must have their applications approved at least eighteen months before they contemplate receiving their degree.

3. Upon graduates of this College of not less than three years' standing, who having been connected with institutions of learning or research, where adequate facilities for advanced work are available, have completed a course equivalent to (1) and have presented a satisfactory thesis.

MECHANICAL ENGINEER.

The degree of Mechanical Engineer (M. E.) may be conferred as follows:

1. Upon graduates of this College of not less than three years' standing, who having been connected with institutions of learning or research, where adequate facilities for advanced work are available, have completed a course consisting of a major and two minor subjects, and presented a satisfactory thesis. The course of study shall be outlined by the heads of the Departments of Civil, Electrical and Mechanical Engineering.

2. Upon graduates of this College who have had three years' professional experience of an acceptable character. Such candidates must present a full report of such experience and such other information as to the qualifications for the degree as may be found desirable, and in addition shall present a satisfactory thesis.

3. All candidates must be at least Junior members of the American Society of Mechanical Engineers. All applications for degrees must be approved twelve months prior to the date they contemplate receiving the degree, and the thesis must be presented at least one month prior to such date.

CIVIL ENGINEER.

The degree of Civil Engineer may be conferred upon any candidate who is a graduate of this College with the degree of Bachelor of Science in Civil Engineering, and has been engaged in engineering pursuits for not less than three years since graduation, provided:

1. That he shall be at least a Junior member of the American Society of Civil Engineers.
2. That he shall accompany his application with a synopsis of the work upon which he bases his request.
3. That the Committee composed of the heads of the Civil, Electrical and Mechanical Engineering Departments, to whom his application shall be referred, shall consider him eligible.
4. That previous to receiving the degree he shall comply with such further conditions as the aforesaid committee shall impose.

SCHOLARSHIPS.

High-School Scholarships.—To encourage *worthy young men* who desire a Collegiate Education, the Board of Trustees has established for each High School in Maryland and the District of Columbia, one scholarship *each year,** to be awarded under the following conditions:

1.—The person awarded a scholarship must be a graduate of a high school and qualified to enter the Freshman Class (See Entrance Requirements, page 114), and must be of approved moral character and at least 15 years of age.

2.—The appointment to a scholarship shall be made by the School Superintendent, upon the recommendation and certification of the Principal of the High School.

The Principal of the High School may recommend one or more persons for appointment, with information as to the merits of each case. In making appointments, not only class standing, but inability to meet the financial expenses of an education should be given consideration.

3.—The appointment shall be made for the term normally required to complete the course selected.

4.—Each scholarship has the value of $50.00 per year. This amount will be credited on the holder's account.

5.—The scholarship will be forfeited by persistent indifference to scholastic work or by repeated disregard of the rules of discipline of the College.

6.—The scholarship will be forfeited in case the holder fails of promotion at the end of any scholastic year, unless there are extenuating circumstances.

COUNTY SCHOLARSHIPS.—Counties which do not have a high school will be given one $50.00 scholarship each year, and the recipient may enter the Sub-Freshman class (See Entrance Requirements, page 120). The appointment to the scholarship is made by the County Superintendent after a competitive examination. In other respects the regulations governing this scholarship are the same as for the high-school scholarships.

INDUSTRIAL SCHOLARSHIPS. For the encouragement of *worthy young men* of limited means towards getting a College education, a limited number of industrial scholarships have been established by the Board of Trustees to be awarded under the following conditions:

1.—The number of scholarships will depend upon the amount of service required.

2.—The value of the scholarship will be graduated according to the amount and character of the work performed, and will range from $40.00 per year upwards. The amount earned will be credited on the holder's account.

3.—The holder of such a scholarship will be required to render to the College certain specified services, such as work in the dining-room, on the corridors, in the library, etc.

*This plan will be gradually put into effect as the present scholarships become vacant.

4.—Such services will not as a rule prevent the holder from participating in military drill.

5.—Vacancies as they occur shall be filled by the President of the College and ratified by the Executive Committee of the Board of Trustees.

6.—The holder of an industrial scholarship: (a)—must be more than 15 years of age and of normal size, health and strength; (b)—must be of approved moral character as attested by some well-known resident of his locality; (c)—must be qualified to enter the Freshman Class of the College (See Entrance Requirements, page 114).

7.—The scholarship will be forfeited by persistent indifference to scholastic work or by repeated disregard of the rules of discipline of the College.

8.—The scholarship will be forfeited in case the services required of the holder are not satisfactory to those in charge of the work.

FACILITIES FOR RELIGIOUS WORSHIP.

The College is undenominational in character. The daily exercises of the College include religious worship in the College Chapel.

Students are encouraged to attend the church of their choice on Sunday mornings. There is an Episcopal church at College Park; and at Berwyn, one mile north, and at Riverdale, one mile south, are Presbyterian churches. In Hyattsville, two miles south, may be found Catholic, Episcopal, Presbyterian, Baptist and Methodist churches. In the city of Washington are churches of all denominations, and students may attend service in this city on Sunday mornings. Parents are urged to insist upon their sons attending the church of the faith of their parents.

COLLEGE REGULATIONS.

The attention of parents is earnestly called to the following rules in force at this College: The College authorities can succeed in

conferring the maximum amount of training upon the student only with and by the active support and earnest co-operation of the parent. The President of the College is always ready and willing to discuss with parent or guardian any failures in a student's record, and correspondence on this subject is always appreciated.

No student will be accepted as a matriculate until the contract card containing the following agreement for matriculation is signed by parent or guardian, and received by the President of the College.

It is understood that the President of the College as the executive of the same, and acting for the Board of Trustees, a party to this contract, *has the right to ask the withdrawal of a student at any time, when in his judgment such withdrawal may be necessary either for the interest of the young man or the institution which he attends. It is further understood that a parent or guardian can at any time withdraw his son or ward, subject to regulations herein set forth.*

A student manifesting indifference to the observance of the rules and regulations of the institution, or wanting in proper attention to the preparation of his work, will be cautioned to improve. Failing to do so his parents, upon notice given by the President, must withdraw their son.

A special pledge to refrain from what is popularly known as *"hazing,"* and taking unfair means in examinations is required of every applicant for entrance, before he will be allowed to matriculate. Parents should impress upon their sons that failure to live up to this pledge is a dishonor which unfits them to be longer students of the College. *"Hazing" is invariably punished by instant dismissal.*

Frequent absences from the College are invariably of great disadvantage to the student, in breaking in upon the continuity of his work and in distracting his mind from the main purpose of his attendance at the institution. Parents are therefore earnestly asked to refrain from granting frequent requests to leave the College.

Students will not be permitted to leave classes to answer telephone calls, unless they are urgent.

Students will not be permitted to make contracts or to sell any article to their associates without the approval of the President.

The College will not be responsible for articles left in the dormitories during vacation, nor for valuables left by students in their rooms at any time. They should be deposited with the College Treasurer, who will place them in the College safe and give a receipt therefor.

RULES ON COLLEGIATE ROUTINE, ENDORSED BY THE FACULTY.

1. A student may not change his course of study unless at the written request of his parent or guardian, and after said request has been endorsed by the head of the course abandoned, and the head of the course requested, and approved by the Committee on Courses.

2. Examinations to make up conditions acquired in any term will be given only on the mornings and afternoons of certain Saturdays in the following term set apart for this purpose, and at such dates as shall be provided for entrance examinations at the beginning of the scholastic year. On these dates students having conditions will be expected to take the examinations as scheduled and will be permitted to do so without the payment of a fee. Should, for any reason, an examination be requested at any other time, a charge of $1.00 will be made for each subject on which the applicant is examined, provided that all such special examinations shall be authorized by the faculty.

3. To attain proficiency a student must make an examination grade of 60 per cent.; also a term average of 70 per cent. In case of failure, upon re-examination a grade of 70 per cent. is required.

4. A credit period is one theoretical or two practical periods per week for one term.

5. A student may not be promoted if conditioned in more than one-fifth of the credit periods required for one year's work, provided that no student may be promoted with more than one condition in any one department.

6. A student may not be promoted if he has any conditions of more than a year outstanding.

7. Any student who uses unfair means in examination will: (1) receive no further examination in same subject; (2) receive zero for examination grade; (3) receive no commission; (4) receive no diploma.

8. A student is subject to an oral examination at any time within ten days after a written examination.

9. An examination paper, containing erasures or showing alterations, may be rejected at the discretion of the Professor in charge, and a new examination ordered.

10. In computing term averages the daily grade is computed at 2, and the examination grade at 1.

11. The yearly averages in all studies is computed by giving each subject a weight according to the mean number of periods per week involved; theoretical periods being given a value of 2, practical periods 1.

12. Senior students must submit subjects for graduating theses prior to February 1st, and all theses for graduation must be completed prior to May 15th.

13. No special courses are permitted save by consent of the Committee on Courses. In case consent is granted for a special course, the certificate awarded attesting work will not have the College seal nor the Governor's signature.

14. No student may take work in more than one class during any one term.

EXPENSES.

FEES.—No tuition fee is required. The following are the only fixed charges payable by each student:

	Boarding Students.	Day Students.
Incidentals.—A part payment towards janitor service, heating and lighting recitation and public rooms, laboratories and library, medical attention, etc.	$30.00	$30.00
Physical Culture, Gymnasium and Athletics	10.00	10.00
Book Rental	10.00	10.00
Room and furniture rent	35.00	....
Laundry	15.00	....
*Board (in College dining hall), $4.00 per week or for College year, 36 weeks	140.00	....
	$240.00	$50.00
Uniforms: Winter	15.10	15.10
Uniforms: Summer	11.50	11.50
	$266.60	$76.60

DAMAGE OR CAUTION MONEY.—A deposit of $3.00 is required of all students at time of entrance as a guarantee against damage to property. Unused damage money is returned to the student at the end of the year.

LABORATORY FEES.—A charge is made each student taking a laboratory course for outfit, material consumed and apparatus destroyed. The charge varies according to the subject.

A deposit in advance is required to meet the usual expenses. In case less is consumed the excess will be returned. In case more is consumed than covered by the deposit, the student will be required to pay the excess. The laboratory deposit shall be made previous to taking up work in the respective laboratories. The fees charged in the different laboratories are as follows:

*If meals are served during any College recess an extra charge will be made for them.

		Per Term.
Chemistry:	Freshman and Sophomore	$3.00
	Junior and Senior	5.00
Physics		.75
Electrical Engineering:	Sophomore	.75
	Junior and Senior	1.00
Mechanical Engineering		1.00
Civil Engineering, Junior and Senior		1.00
Botany and Plant Physiology		2.50
Entomology and Zoology		3.00
Bacteriology		2.00
Veterinary		.50
Agronomy		2.00
Animal Husbandry		2.00
Horticulture		2.00

Students entering College after November 1st, or withdrawing prior to the close of the scholastic year, will be charged for the time they are in attendance, as follows:

Boarding students at the rate of $30.00 per month.

Day students at the rate of $6.00 per month.

Students withdrawing more than two weeks after entrance will be charged for at least one month's attendance.

Students withdrawing less than two weeks after entrance, will be charged at the rate of $2.00 per day.

Table board for students not rooming at the College will be $4.00 per week, or 25 cents per meal.

Day students may get lunch at noon at the lunch counter at nominal prices.

Charges against students are continued until formal withdrawal has been made.

No student will be promoted to another class, and no diploma will be conferred upon, nor any certificate issued to a student who is in arrears in his account with the College.

Students failing to pay the quarterly charges within 30 days from time due, will be required to withdraw until settlement is made, and a charge of 2 per cent. per month penalty will be made.

TIME OF PAYMENT.—For boarding students, $60.00 on entrance, $60.00 November 15th, $60.00 February 1st, $60.00 April 1st.

For day students, $12.50 on entrance, $12.50 November 15th, $12.50 February 1st, $12.50 April 1st.

Students will be required to pay a fee of 25 cents per piece for transportation of baggage to and from station.

In cases of illness, requiring a special nurse and medical attention, the expense must be borne by the student.

Students will be admitted free of cost to membership in College Athletic Association.

All College property in the possession of the individual student, such as his room, furniture, books, apparatus and military equipment, will be charged against him, and the parent or guardian must assume responsibility for its return without abuse to the proper department at the end of each scholastic year, at which time the account will be cancelled. If abused, the cost of replacing or repairing the abused article must be paid by the parent or guardian.

Damage to College property in public places in the building and on the grounds by the student will be charged to the whole student body, pro rata, unless the offender is known. In such cases, the whole expense of repairing or replacing the damaged property will be charged to the parent or guardian of the offending party. The matriculation of a student is evidence of the acceptance of this regulation.

Uniform.—The uniform is the same as worn at the United States Military Academy at West Point. It is made of the best Charlottesville gray cloth, under a special contract with one of the best military equipment houses in the United States. This uniform is furnished at a very low price.

The uniform consists of gray fatigue blouse, gray fatigue trousers and gray fatigue cap for all military formations. The uniform and equipment cost:

Fatigue blouse	$8.00
Fatigue trousers	5.50
Fatigue cap	1.60
Total	$15.10

Measures for this uniform are taken as soon as the student arrives at College and fit is guaranteed.

A deposit of at least 25 per cent. for this uniform must be made with the Treasurer when the measure is taken, as no uniform will be ordered until the money has been deposited for the same. The uniform must be paid for in full before it is delivered. No uniform is paid for until it is approved by the Commandant of Cadets.

In summer the field service uniform is worn, consisting of drab blouse, shirt and trousers, canvas leggins, regulation campaign hat, tan leather waist belt and black tie.

The cost of the summer outfit is:

1 olive drab blouse	2.50
1 campaign hat	1.00
1 pair canvas leggins	.80
1 harness leather belt	.50
1 black four-in-hand tie	.20
1 pair of white duck trousers	1.50
1 pair olive drab breeches	2.00
2 olive drab shirts	3.00
Total for summer uniform	$11.50

Deposits for the summer uniform must be made immediately after the first of January.

White gloves, collars, etc., may be purchased at the stores near the College or from the contractor furnishing the uniforms.

The uniforms will last more than one year if given careful usage.

Articles Necessary to be Provided.—All students assigned to dormitories are required to provide themselves with the following articles, to be brought from home or purchased on arrival:

1 pair blankets (for single bed).
2 pairs sheets (for single bed).
4 pillow cases.
1 chair (uniform).
6 towels.
8 table napkins.
1 pillow.
1 mattress (uniform).
2 clothes bags (uniform).
1 broom.

ACKNOWLEDGMENTS.

MEDALS.—The authorities of the Institution take this opportunity to express their appreciation of the courtesy of their friends in establishing the following, for competition:

William Pinkney Whyte Medal, for excellence in Oratory, offered by Hon. Isaac Lobe Straus, of Baltimore, Md.

Winfield Scott Schley prize, for excellence in Oratory, offered by B. H. Warner, Esq., of Kensington, Md.

James Douglas Goddard Memorial Medal, to student of Prince George's county making the highest average in studies, offered by his sister, Mrs. Annie K. Goddard James, of Washington, D. C.

A Silver Cup, to the Literary Society winning the inter-Society Debate, offered by Dr. H. J. Patterson, of College Park, Md.

STUDENT ORGANIZATIONS.

Students' clubs for religious, social, literary and athletic purposes are encouraged as a means of creating class and college pride, and developing an *esprit de corps* among the students. Each class has its own organization, in which matters relating to the class are discussed and directed. Officers are elected and the unity of the class preserved. This has been found to be a decided aid to discipline and tends to raise the standard of student honor.

YOUNG MEN'S CHRISTIAN ASSOCIATION.

Much encouraging work has been done by this organization during the past year, and gratifying interest has been shown in the meetings.

OFFICERS.

President, W. E. Harrison.
Vice-President, S. E. Day.
Recorder, R. S. Dearstyne.
Treasurer, W. J. Aitcheson.

LITERARY SOCIETIES.

These societies are invaluable adjuncts to college work. Through them a knowledge of parliamentary law is gained, as well as a readiness of expression and activity in thought, qualities particularly valuable to the American citizen.

The literary society work is under the general supervision of the Professor of Public Speaking, who is always ready to advise with the members in matters of parliamentary law and train them in the delivery of their orations and debates.

MORRILL SOCIETY.

President, C. T. Cockey.
Vice-President, K. E. Smith.
Secretary, E. A. Taylor.
Treasurer, G. B. Gray.

NEW MERCER SOCIETY.

President, T. D. Gray.
Vice-President, P. N. Peter.
Secretary-Treasurer, W. R. Kelly.

ENGINEERING SOCIETY.

One of the newest and most beneficial additions to the M. A. C. is the Engineering Society. Organized in September, 1912, it proved an immediate success, gratifying a long-felt and much-needed want on the part of the engineering students. The general object of the Society is the cultivation of a more active interest in engineering work, while its special aim is to give the student the opportunity to discuss the line of work in which he is interested and to become more accustomed to presenting his ideas. Inasmuch as the Society takes in all members of the Senior and Junior Classes in the Civil, Electrical and Mechanical Engineering Courses, a larger opportunity for acquiring technical knowledge outside of one's own course is offered.

The Society meets twice a month on alternate Thursdays. Papers are presented at alternate meetings by Engineers in practice and by the students themselves.

OFFICERS.

President, A. H. Massey.
Vice-President, E. R. Hindman.
Secretary, J. E. Bowland.
Treasurer, F. J. McKenna.

THE LIEBIG CHEMICAL SOCIETY.

The Liebig Chemical Society was organized to satisfy a much-felt need. The object of the Society is to have the various chemical problems of the day, discussed by men who have specialized in the different branches of Chemistry, or by the members themselves. This tends to develop a keener interest in Chemistry, and also to broaden the student along Chemical lines.

Membership in this Society is open to all members of the Sophomore, Junior and Senior Classes, who are specializing in Chemistry.

OFFICERS.

President, P. N. Peter.
Vice-President, M. E. Rohn.
Secretary-Treasurer, K. T. Knode.

AGRICULTURAL CLUB.

President, J. H. Knode.
Vice-President, C. K. Wilkinson.
Secreary-Treasurer, P. H. Morris.

ROSSBOURG CLUB.

The social man is a necessity—hence this organization is encouraged and supported by the President and Faculty. The entertain-

ments have been marked by a spirit which emphasizes the wisdom of its organization and justifies its encouragement.

OFFICERS.

President, R. S. Brown.
Vice-President, A. R. Carter.
Secretary, C. H. Buchwald.
Treasurer, R. Dale.

REVEILLE.

The "Reveille" is the College annual, edited entirely by the Senior Class. Seventeen editions of the "Reveille" have appeared and each has been characterized by a gratifying improvement in the standard both of originality and expression.

EDITORIAL STAFF.

Editor-in-Chief, P. A. Hauver.
Associate Editors, P. N. Peter, W. E. Hall, M. E. Rohn, F. W. Wright, T. D. Gray, J. J. Tull, J. H. Knode, W. R. Kelly.
Business Manager, C. H. Buchwald.
Assistant Business Managers, A. H. Massey, R. Dale.
Treasurer, T. D. Gray.

M. A. C. WEEKLY.

The "M. A. C. Weekly" is the College newspaper, and is published every week during the scholastic year.

EDITORIAL STAFF.

Editor-in-Chief, W. E. Harrison.
Athletic Editor, S. E. Day.
Local Editor, J. C. Sterling.
Assistant Local Editors, L. C. Wilson, C. E. Sando.

Sophomore Editors, C. L. Larsen, G. G. Donovan, H. B. Winant.
Freshman Editors, F. D. Day, H. G. Montell.
Alumni Editor, E. N. Cory.
Cartoonist, M. E. Rohn.
Business Manager, E. A. Taylor.
Assistant Business Manager, G. B. Gray.

STUDENT ATHLETIC ASSOCIATION.

Membership in the Athletic Association is open to all students free of charge.

The object of the Association is to foster athletic spirit, prevent indiscretion in athletic matters and co-operate with the Athletic Council in the general management of all athletic affairs.

OFFICERS.

President, W. R. Kelly.
Secretary, F. J. McKenna.

ATHLETIC COUNCIL.

The Athletic Council, in conjunction with the Student Athletic Association, manages all athletic affairs. It consists of seven members of the Faculty, appointed by the President, and five students, namely, the managers of the football, baseball, track and tennis teams, and the President of the Athletic Association.

THE ORATORICAL ASSOCIATION OF MARYLAND COLLEGES.

The Maryland Agricultural College is a member of this Association, which is composed of St. John's College, Washington College, Western Maryland College and Maryland Agricultural College. Contests are held annually at these colleges in rotation, and a marked improvement is to be observed as a result of its organization.

BOARD OF PROCTORS.

This Board consists of a limited number of Senior students who have charge of the students in dormitory and on the campus. They

adjust all minor matters of discipline, grant temporary leaves of absence, inspect student quarters and are responsible for the general order and physical condition of the dormitories.

PROCTOR STAFF.

Chief Proctor, C. T. Cockey.
Associate Proctors, J. E. Bowland, J. H. Knode, C. E. Robinson.

STUDENTS' CONFERENCE COMMITTEE.

This Committee is composed of a certain number of representatives from each class and a number of the members of the Faculty. The object of this Committee is to establish a definite relationship between the Faculty and the student body.

COUNTY CLUBS.

These Clubs are formed or the purpose of bringing together students from the same County to discuss the affairs of the County. From these Clubs the students acquire valuable knowledge concerning their home County.

THE ALUMNI ASSOCIATION.

An Institution can largely be judged by the character of its Alumni. Their success in life is the Institution's pride. The work of the Alumni of a College is its greatest asset. M. A. C. is fortunate in having among its Alumni, men who have attained notable achievements in Agriculture, Engineering and Science. M. A. C. Alumni can be found holding prominent positions in all walks of life.

While for many years the Alumni, through their Association, have taken an active interest in the growth and development of the Institution, it is pleasing to state that this interest has been greatly increased during the past two or three years and since the recent

great fire at the College, the Association has taken active steps to aid the Board of Trustees and Faculty in the rehabilitation of the College.

One of the cherished hopes of the Association, that of having direct representation on the Board of Trustees, has been attained in the appointment of a past President of the Alumni Association, by the Governor of the State, as a Trustee of the College. The attainment of this end will naturally greatly increase the enthusiasm and interest of the members of the Association in co-operating more closely than ever with the College authorities in increasing the scope and usefulness of the Institution.

The Alumni Association continues to offer a medal to the debating societies.

The members have also greatly aided in the development of athletics and especially in conducting the joint athletic meets, which were held at the College during the last four years.

The Alumni also co-operate in the publishing of the "M. A. C. Weekly."

The officers of the Alumni Association for the present year are: President, R. M. Pindell, '89; Vice-President, F. P. Veitch, '91; Secretary-Treasurer, R. Brigham, '08; Executive Committee, members at large, W. W. Skinner, '95; W. D. Graff, '00; ".M. A. C. Weekly" Staff—Alumni Editor, E. N. Cory, '09; Business Manager, R. C. Williams, '14.

Graduates and members of the Association are requested to keep the Secretary-Treasurer, R. Brigham, College Park, Md., informed of any change in address. Any information concerning the older graduates which will enable the officers to locate and communicate with them will facilitate their efforts and will tend to further the success of the Association.

DEGREES CONFERRED JUNE 17th. 1914.

Honorary.

DOCTOR OF LAWS.

HON. WILLIAM B. WILSON, U. S. SECRETARY OF LABOR.
HON. JAMES M. MONROE, ANNAPOLIS, MD.

In Course.

MASTER OF SCIENCE.

EMMONS B. DUNBAR, SPRINGVILLE, NEW YORK.
SAMUEL DENT GRAY, NANJEMOY, MARYLAND.
CHARLES G. REMSBURG, COLLEGE PARK, MD.

BACHELOR OF SCIENCE.

AGRICULTURE.

HASKIN UPDEGRAFF DEELEY, BALTIMORE CITY.
WILLIAM TALIAFERRO FLETCHER, ALEXANDRIA, VIRGINIA.
ROBERT THOMAS GRAY, CHARLES COUNTY, MD.
DAVID LLEWELLYN JOHNSON, FREDERICK COUNTY, MD.

HORTICULTURE.

ALBERT WHITE, PRINCE GEORGE COUNTY, MD.

BIOLOGY.

CHARLES MARTIN LODGE, MCCONNELLSBURG, PA.
FRANCIS H. O'NEILL, PRINCE GEORGE COUNTY, MD.
REGINALD VAN TRUMP TRUITT, WORCESTER COUNTY, MD.

CHEMISTRY.

RICHARD CALVERT WILLIAMS, CHARLES COUNTY, MD.

GENERAL SCIENCE.

JOHN B. GRAY, JR., CALVERT COUNTY, MD.

CIVIL ENGINEERING.

HARRY STANLEY FORD, SOMERSET COUNTY, MD.
JOSHUA WELDON GREEN, SOMERSET COUNTY, MD.

ELECTRICAL ENGINEERING.

EDWIN PURNELL WILLIAMS, DORCHESTER COUNTY, MD.

MECHANICAL ENGINEERING.

JOSEPH BENJAMIN COSTER, CALVERT COUNTY, MD.
LLOYD RUSSELL ROGERS, BALTIMORE CITY.

CERTIFICATES IN TWO-YEAR COURSES.

AGRICULTURE.

Charles McAlment Bright, Queen Anne County, Md.
Kenneth C. Cole, Port Chester, New York.
George Albert Davis, Harford County, Md.
Leigh Russell Drake, Talbot County, Md.
Thomas Berry Long, Somerset County, Md.
George Victor Maus, Carroll County, Md.
Albert Dunlop Radebaugh, Harford County, Md.
Jacob Edward Shillinger, Talbot County, Md.
Howard Burton Shipley, Prince George County, Md.
William Clay Stanton, Garrett County, Md.

HORTICULTURE.

Frank Dunnington, Washington, D. C.
Calvin Beard Hoffman, Washington County, Md.
Lawrence Ricaud Smoot, Montgomery County, Md.

Testimonials of Merit Awarded June 17, 1914.

For distinguished achievement in the promotion of the agricultural interests of Maryland:

E. P. COHILL, WASHINGTON COUNTY, MD.
For his efforts in promoting Horticulture.

E. O. GARNER, CARROLL COUNTY, MD.

For his efforts in promoting Rural Progress.

SAMUEL M. SHOEMAKER, BALTIMORE COUNTY, MD.

For his efforts in promoting improved Highways.

Medals and Prizes Awarded June 17, 1914.

For excellence in the Agronomy Course; offered by the Alumni Association:

D. L. JOHNSON, FREDERICK COUNTY, MD.

For excellence in the Animal Husbandry Course; offered by the College:

H. U. DEELEY, BALTIMORE CITY.

For excellence in the Chemical Course; offered by the College:

R. C. WILLIAMS, CHARLES COUNTY, MD.

For excellence in the Civil Engineering Course; offered by the College:

H. S. FORD, SOMERSET COUNTY, MD.

For excellence in the Mechanical Engineering Course; offered by the Alumni Association:

J. B. COSTER, CALVERT COUNTY, MD.

For Excellence in the Electrical Engineering Course; offered by the College:

E. P. WILLIAMS, DORCHESTER COUNTY, MD.

For excellence in the General Science Course; offered by the College:

J. B. GRAY, JR., CALVERT COUNTY, MD.

For excellence in Debate; offered by the Alumni Association:

J. C. STERLING, SOMERSET COUNTY, MD.

The Goddard Medal, for excellence in Scholarship and moral Character; offered by Mrs. Annie K. Goddard James:

R. C. TOWLES, PRINCE GEORGE COUNTY, MD.

The William Pinkney Whyte Medal, for excellence in Oratory; offered by Isaac Lobe Straus, Esq:

J. B. GRAY, JR., CALVERT COUNTY, MD.

MILITARY ORGANIZATION.

COMMANDANT OF CADETS.

Major John A. Dapray.....United States Army.

BATTALION FIELD AND STAFF.

COMMISSIONED AND NON-COMMISSIONED OFFICERS.

C. E. Robinson.....Major.
M. E. Rohn.....First Lieutenant and Adjutant.
G. S. Frazee.....First Lieutenant and Quartermaster.
G. B. Gray.....Sergeant Major.
J. S. Sunstone.....Color Sergeant.
A. C. Medinger.....Color Sergeant.
J. Bradley.....Battalion Quartermaster Sergeant.

CADET BAND ORGANIZATION.

M. E. Rohn.....Adjutant Commanding.
E. Roberts.....Principal Musician.
H. Smith.....Drum Major.
W. R. Kelly.....Sergeant.
J. Donnet.....Sergeant.
L. C. Wilson.....Corporal.
F. Sellman .....Corporal.
K. C. Posey.....Corporal.
S. Fuchs .....Corporal.
C. H. Hunt.....Corporal.

COMPANY OFFICERS AND NON-COMMISSIONED OFFICERS.

Company "A."	Company "B."	Company "C."

CAPTAINS.

E. W. Montell.	L. R. Pennington.	A. R. Carter.

FIRST LIEUTENANTS.

F. J. McKenna.	R. J. McCutcheon.	J. H. Knode.

R. Dale, (Commanding Signal Detachment).

SECOND LIEUTENANTS.

F. W. Wright.	W. E. Hall.	H. A. Clark.

FIRST SERGEANTS.

K. T. Knode.	P. H. Morris.	K. E. Smith.

Company "A."	Company "B."	Company "C."

QUARTERMASTER SERGEANTS.

R. McHenry.	E. A. Taylor.	R. White.

SERGEANTS.

L. E. Bopst.	R. S. Bains.	W. Aitcheson.
W. McLean.	K. Grace.	L. W. Erdman.

CORPORALS.

L. M. Childs.	I. Coggins.	H. B. Derrick.
J. M. Vincent.	B. F. Senart.	A. V. Williams.
J. A. Bromley.	D. J. Howard.	G. M. Sturgis.
W. P. Williams.	J. E. Mills.	J. Moraes.
J. E. Taliaferro.	W. A. Gemeny.	H. H. Balkam.
	L. L. Seigert.	

FIELD MUSICIANS.

A. Miller.	S. C. Wallace.	H. Freundlich.
A. D. Etienne.	O. Beall.	D. Rust.

J. P. Blundon, (Attached to Signal Detachment).

ROSTER OF MATRICULATES.

SESSION 1914-15.

NAME.	POST OFFICE.	COUNTY.
	GRADUATE STUDENTS.	
Anspon, B. W.,	College Park,	Prince George.
Furst, W. A.,	Baltimore,	*Baltimore City.*
Graham, J. J. T.,	Hyattsville.	Prince George.
Hayman, E. T.,	Baltimore,	*Baltimore City.*
Linhardt, C. H.,	Baltimore,	*Baltimore City.*
Monroe, J. F.,	Snow Hill.	Worcester.
	SENIOR CLASS.	
Andriopulos, L. D.,	Issari,	*Greece.*
Blundon, J. P.,	Riverdale,	Prince George.
Bowland, J. E.,	Kingston,	Somerset.
Brown, R. S.,	Gapland,	Washington.
Buchwald, C. H.,	Baltimore,	*Baltimore City.*
Carpenter, O. G.,	Plum Point,	Calvert.
Carter, A. R.,	Annapolis,	Anne Arundel.
Clark, H. A., Jr.,	Roland Park,	Baltimore.
Cockey, C. T.,	Pikesville,	Baltimore.
Dale, R.,	Princess Anne,	Somerset.
Frazee, G. S.,	Old Town,	Allegany.
Gibson, A. M.,	Baltimore,	*Baltimore City.*
Gray, T. D.,	Grayton,	Charles.
Hall, W. E.,	Riderwood,	Baltimore.
Harrison, W. E.,	Sparrows Point,	Baltimore.
Hauver, P. A.,	Lantz,	Frederick.
Kelly, W. R.,	Baltimore,	*Baltimore City.*
Kisliuk, M.,	Washington,	*District of Columbia.*
Knode, J. H.,	Hagerstown,	Washington.
Levin, M.,	Baltimore,	*Baltimore City.*
McCutcheon, R. J.,	Braddock Heights,	Frederick.
Massey, A. H.,	Massey,	Kent.
Montell, E. W.,	Catonsville,	Baltimore.
Pennington, L. R.,	Havre de Grace,	Harford.
Pennington, V. P.,	Millington,	Kent.
Perkins, W. T.,	Springfield,	Prince George.
Peter, P. N.,	Kensington,	Montgomery.
Pierson, W. H.,	Washington,	*District of Columbia.*
Roberts, E. McC.,	Philadelphia,	*Pennsylvania.*
Robinson, C. E.,	Franktown,	*Virginia.*
Rohn, M. E.,	Baltimore,	*Baltimore City.*
Todd, R. N.,	Salisbury,	Wicomico.
Tull, J. J.,	Crisfield,	Somerset.
West, R. P.,	Washington,	*District of Columbia.*
Wright, F. W.,	Forest Glen,	Montgomery.
Xerocostas, A. B.,	Issari,	*Greece.*

NAME.	POST OFFICE.	COUNTY.
	JUNIOR CLASS.	
AITCHESON, W. J.,	Burtonsville,	Montgomery.
BAINS, R. S.,	Washington,	*District of Columbia.*
BOPST, L. E.,	Frederick,	Frederick.
BOWLING, J. D., JR.,	Upper Marlboro,	Prince George.
BROCKWELL, W. A.,	Washington,	*District of Columbia.*
BURLINGAME, L. E.,	Washington,	*District of Columbia.*
DAY, S. E.,	Baltimore,	*Baltimore City.*
EDDY A. E.,	Berwyn,	Prince George.
ERDMAN, L. W.,	Baltimore,	*Baltimore City.*
FORD, B. A.,	Roland Park,	Baltimore.
GRACE, K.,	Easton,	Talbot.
GRAY, G. B. D.,	Prince Frederick,	Calvert.
GRIFFIN, S. E.,	Highland,	Howard.
HINDMAN, E. R.,	Port Deposit,	Cecil.
KNATZ, E. G., JR.,	Owings Mills,	Baltimore.
KNODE, K. T.,	Martinsburg,	*West Virginia.*
LODGE, F. G.,	McConnellsburg,	*Pennsylvania.*
MCBRIEN, R. O.,	Riverdale,	Prince George.
MCHENRY, R.,	Frederick,	Frederick.
MCKENNA, F. J.,	Woonsocket,	*Rhode Island.*
MCLEAN, W.,	Baltimore,	*Baltimore City.*
MORRIS, P. H.,	Faulkner,	Charles.
REISINGER, H. A.,	Rockville,	Montgomery.
SANDO, C. E.,	Washington,	*District of Columbia.*
SMITH, K. E.,	College Park,	Prince George.
STEINMETZ, F. J.,	Roland Park,	Baltimore.
STERLING, J. C.,	Crisfield,	Somerset.
SUNSTONE, J. T.,	Baltimore,	*Baltimore City.*
TAYLOR, E. A.,	Stockton,	Worcester.
TAYMAN, G. S.,	Westwood,	Prince George.
TOWLES, R. C.,	College Park,	Prince George.
WHITE, R.,	College Park,	Prince George.
WILSON, L. C.,	Nottingham,	*Pennsylvania.*
	SOPHOMORE CLASS.	
BALKAM, H. H.,	Washington,	*District of Columbia.*
BRADLEY, J.,	Lonaconing,	Allegany.
BROMLEY, J. A.,	Stockton,	Worcester.
BURRITT, L.,	Washington,	*District of Columbia.*
CHILDS, L. M.,	Highland,	Howard.
COGGINS, I.,	Washington,	*District of Columbia.*
COHN, F. L.,	New York,	*New York City.*
COULSON, W. H.,	Riverdale,	Prince George.
DEARSTYNE, R. S.,	Port Chester,	*New York.*
DERRICK, H. B.,	Takoma Park,	*District of Columbia.*
DONNET, J.,	Baltimore,	*Baltimore City.*
DONOVAN, C. G.,	Washington,	*District of Columbia.*
DUBEL, B.,	Baltimore,	*Baltimore City.*
FREUNDLICH, H.,	Baltimore,	*Baltimore City.*
FRISTOE, H. W.,	Baltimore,	*Baltimore City.*

NAME.	POST OFFICE.	COUNTY.
FUCHS, C. H.,	Port Chester,	*New York.*
GEMENY, W. A.,	Bozman,	Talbot.
GILPIN, W. F.,	Lanham,	Prince George.
GRAY, W. D.,	Prince Frederick,	Calvert.
HASLUP, L. H.,	Annapolis Junction,	Howard.
HOWARD, D. J.,	Brookville,	Montgomery.
KING, C. R.,	Hyattsville,	Prince George.
KISHPAUGH, W. M.,	Harrisburg,	*Pennsylvania.*
KORFF, F. A.,	Baltimore,	*Baltimore City.*
LARSEN, C. L.,	Glenwood,	*Long Island.*
LONDON, O.,	New York,	*New York City.*
MEDINGER, A. C.,	Balboa,	*Canal Zone.*
MESS, R. W.,	Chevy Chase,	Montgomery.
MORAES, J.,	Hyattsville,	Prince George.
NASH, P. M.,	Washington,	*District of Columbia.*
SELLMAN, A. H.,	Washington,	*District of Columbia.*
SENART, B. F.,	Washington,	*District of Columbia.*
SHOEMAKER, H. R.,	Ashton,	Montgomery.
SMITH, H.,	Arlington,	Baltimore.
STURGIS, G. M.,	Hyattsville,	Prince George.
TARBUTTON, C. C.,	Crumpton,	Queen Anne.
THOMSEN, F. L.,	Hyattsville,	Prince George.
THORNE, M. A.,	Lanham,	Prince George.
WALLACE, S. C.,	Baltimore,	*Baltimore City.*
WATSON, R. D.,	Welcome,	Charles.
WILLIAMS, A. V.,	Nanticoke,	Wicomico.
WINANT, H. B.,	Washington,	*District of Columbia.*

FRESHMAN CLASS.

ABRAHAM, G. C.,	New York,	*New York City.*
ARTHUR, R. W.,	Havre de Grace,	Harford.
BACON, C. H.,	Silver Spring,	Montgomery.
BARRETT, W. D.,	Baltimore,	*Baltimore City.*
BARTON, P.,	Washington,	*District of Columbia.*
BOONE, A. W.,	Philadelphia,	*Pennsylvania.*
BRANDES, A. R.,	Washington,	*District of Columbia.*
BRIMER, F. C.,	Stockton,	Worcester.
BURGESS, C.,	Clinton,	Prince George.
CARROLL, W. H.,	Baltimore,	*Baltimore City.*
CLARK, P. E.,	La Plata,	Charles.
CONRAD, R.,	Winston-Salem,	*North Carolina.*
COOK, W.,	Sandy Spring,	Montgomery.
COPPAGE, H. S.,	Church Hill,	Queen Anne.
DAVISON, B.,	Washington,	*District of Columbia.*
DAY, F. D.,	Boyds,	Montgomery.
DIETRICH, J. F., JR.,	West Arlington,	Baltimore.
ELLIOTT, C. S.,	Hebron,	Wicomico.
EPPLEY, G. F.,	Washington,	*District of Columbia.*
EYRE, R. S.,	Highland,	Howard.
EZEKIEL, M. J. B.,	Hyattsville,	Prince George.
FRANCE, R.,	Washington,	*District of Columbia.*
FUHRMANN, C. J.,	Brentwood,	Prince George.

NAME.	POST OFFICE.	COUNTY.
GILMOUR, L. J.,	Ogdensburg,	*New York.*
GRIGG, W. H.,	Port Chester,	*New York.*
GRUBB, E. W.,	Sudlersville,	Queen Anne.
HAIG, F. M.,	Riverdale,	Prince George.
HANCOCK, M. L.,	Snow Hill,	Worcester.
HARRIS, G. S.,	Centreville,	Queen Anne.
HART, DEW. C.,	Branchville,	Prince George.
HORN, P. V.,	Mt. Airy,	Carroll.
JAMES, C. G.,	Easton,	Talbot.
JOHNSTON, L. E.,	Hagerstown,	Washington.
JONES, J. P.,	Davidsonville,	Anne Arundel.
JEUNEMANN, J. G.,	Washington,	*District of Columbia.*
KANN, R. S.,	Pittsburg,	*Pennsylvania.*
KNOWLES, W. J.,	Riverdale,	Prince George.
KUHLMAN, W. D.,	Round Hill,	*Virginia.*
LEITHEISER, W. D.,	Havre de Grace,	Harford.
LIEPMAN, L.,	Baltimore,	*Baltimore City.*
MCCOMAS, J. P.,	White Hall,	Baltimore.
MCKINLEY, E. B.,	Washington,	*District of Columbia.*
MCPHERSON, R. D.,	Easton,	Talbot.
MANN, J. W.,	Washington,	*District of Columbia.*
MANTZ, F. MCL.,	York,	*Pennsylvania.*
MERRILL, G. M.,	Crisfield,	Somerset.
MILLER, W. L.,	Cumberland,	Allegany.
MONTELL, H. G.,	Catonsville,	Baltimore.
MONTGOMERY, T.,	Riverdale,	Prince George.
NEWTON, G. A.,	Jessup,	Howard.
NICHOLS, W. E.,	Hinton,	*West Virginia.*
POSEY, K. C.,	La Plata,	Charles.
POSEY, W. B.,	Anacostia,	*District of Columbia.*
PYLE, C. T.,	Baltimore,	*Baltimore City.*
PYLE, M. A.,	Baltimore,	*Baltimore City.*
QUINN, D. L.,	Crisfield,	Somerset.
RAKEMANN, F. B.,	Washington,	*District of Columbia.*
REMSBURG, J. H.,	Middletown,	Frederick.
REID, E. N.,	Welbourn,	Worcester.
RICH, M. N.,	Washington,	*District of Columbia.*
ROGERS, W. K.,	Williston,	*South Carolina.*
SANDO, W. J.,	Washington,	*District of Columbia.*
SIMPSON, E. O.,	Chance,	Somerset.
STUNTZ, R. G.,	Washington,	*District of Columbia.*
TERNENT, S. S.,	Lonaconing,	Allegany.
TONGUE, B. S.,	Baltimore,	*Baltimore City.*
WILDE, E. L.,	Washington,	*District of Columbia.*
WILLIAMS, W. P.,	Doncaster,	Charles.
WEIGAND, P. E.,	Baltimore,	*Baltimore City.*

SUB-FRESHMAN CLASS.

AITCHESON, J. L.,	Burtonsville,	Montgomery.
AMIGO, J.,	Havana,	*Cuba.*
AXT, R. W.,	Baltimore,	*Baltimore City.*
BEALL, O. L.,	Beltsville,	Prince George.

NAME.	POST OFFICE.	COUNTY.
BENNETT, W. E.,	Riverdale,	Prince George.
BISHOP, R.,	Welcome,	Charles.
BLAIR, J. L.,	Washington,	*District of Columbia.*
BLETCH, C. F.,	Mt. Ranier,	Prince George.
BOYER, R.,	Washington,	*District of Columbia.*
BURNSIDE, B. L.,	Hyattsville,	Prince George.
CHICHESTER, F. S.,	Aquasco,	Prince George.
CONEY, W. J. R.,	Roland Park,	Baltimore.
COULSON, J.,	Riverdale,	Prince George.
CONYNGTON, J.	Washington,	*District of Columbia.*
CREEGER, J. M.,	Thurmont,	Frederick.
DANIELS, M. B.,	Hyattsville,	Prince George.
DAVIS, W. L.,	Baltimore,	*Baltimore City.*
DAWSON, F. A.,	Washington,	*District of Columbia.*
DIAZ, J. N.,	Yabucoa,	*Porto Rico.*
DONALDSON, E. E.,	Laurel,	Prince George.
DORSEY, THOS. R.,	Mt. Ranier,	Prince George.
DRAWBAUGH, J. R.,	Washington,	*District of Columbia.*
ENGLE, WM. B.,	Washington,	*District of Columbia.*
ETIENNE, A. D.,	Berwyn,	Prince George.
FULLER, E. A.,	Hyattsville,	Prince George.
GLEASON, R. W.,	Washington,	*District of Columbia.*
GREENBERG, S.,	Washington,	*District of Columbia.*
HAIG, R. VAN R.,	Riverdale,	Prince George.
HANCE, C. W.,	Mutual,	Calvert.
HAND, E. W.,	Berwyn,	Prince George.
HARDISTY, W. R.,	Seabrook,	Prince George.
HARVEY, M. L.,	Lanham,	Prince George.
HEMPSTONE, W. D., JR.,	Leesburg,	*Virginia.*
HICKS, W. P.,	Govans,	Baltimore.
KAISER, W. C.,	Baltimore,	*Baltimore City.*
KEEFAUVER, J. E.,	Berwyn,	Prince George.
LATIMER, T. M.,	Hyattsville,	Prince George.
MILLER, A. A.,	College Park,	Prince George.
MILLER, K. S.,	Washington,	*District of Columbia.*
PARRAN, S. D.,	St. Leonard,	Calvert.
PENISTON, R. G.,	Hotel Frascati,	*Bermuda.*
PRENTICE, W. W.,	Kenilworth,	*District of Columbia.*
PYWELL, E.,	College Park,	Prince George.
REID, A. C.,	Roland Park,	Baltimore.
RHOTEN, W. R.,	Hampstead,	Carroll.
RUST, A. D.,	Mt. Ranier,	Prince George.
SAWYER, E. M.,	Manila,	*Philippine Islands.*
SEWELL, M. D.,	Hyattsville,	Prince George.
SIEGERT, L. L., JR.,	Galloways,	Anne Arundel.
SMITH, J. E.,	Galloways,	Anne Arundel.
STANLEY, CHAS. H.,	Washington,	*District of Columbia.*
STURGIS, H. L.,	Hyattsville,	Prince George.
SWARTZ, J. M.,	Baltimore,	*Baltimore City.*
VAN DYKE, R. L.,	Baltimore,	*Baltimore City.*
VINCENT, J. M.,	Hyattsville,	Prince George.
WRIGHT, C. W.,	Cumberland,	Allegany.
YASTE, A. E.,	Lonaconing,	Allegany.
ZIRKLE, LEONARD,	Kenilworth,	*District of Columbia.*

NAME.	POST OFFICE.	COUNTY.
SECOND YEAR AGRICULTURAL.		
BEAVERS, P. H.,	Richmond,	*Virginia.*
GILPIN, D.,	Sandy Spring,	Montgomery.
HEERMANN, H. W.,	New York,	*New York City.*
JARRELL, W. E.,	Greensboro,	Caroline.
LALLY, MARTIN,	Berwyn,	Prince George.
MASON, T. B.,	Accotink,	*Virginia.*
STABLER, N. S.,	Washington,	*District of Columbia.*
WILKINSON, C. K.,	Alexandria,	*Virginia.*
SECOND YEAR HORTICULTURAL.		
SAUBER, H.,	Washington,	*District of Columbia.*
SCHAEFER, R. L.,	Washington,	*District of Columbia.*
WILLIS, J. A.,	Glenn Dale,	Prince George.
FIRST YEAR AGRICULTURAL AND HORTICULTURAL.		
BEALL, S. W.,	Beltsville,	Prince George.
BELL, J. P.,	Hamilton,	Baltimore.
BINGHAM, L. R.,	Washington,	*District of Columbia.*
BORBA, J.,	Hyattsville,	Prince George.
BOURNE, T. B.,	Baltimore,	*Baltimore City.*
BROWN, J. P.,	Centreville,	Queen Anne.
CLARKE, J. T. F.,	Washington,	*District of Columbia.*
CLEMENTS, G.,	Millington,	Kent.
DONOVAN, T. J.,	Beverly Farms,	*Massachusetts.*
EVANS, H. P.,	Washington,	*District of Columbia.*
FAULKNER, G. D.,	Tilghmans,	Talbot.
FULTON, R. A.,	Springfield,	*Missouri.*
HAMILTON, L. B.,	La Plata,	Charles.
HARRISON, H. L.,	Berlin,	Worcester.
HUNGERFORD, R. A.,	Marshall Hall,	Charles.
HUNT, CHAS., JR.,	Washington,	*District of Columbia.*
JACOBS, R. Q.,	Berlin,	Worcester.
LAPHAM, E. W.,	Goldsboro,	Caroline.
LEISSLER, G. A., JR.,	Washington,	*District of Columbia.*
LEITH, J. D.,	Washington,	*District of Columbia.*
MCDONALD, H. M.,	Barton,	Allegany.
MILLS, J. E.,	Hyattsville,	Prince George.
OSBORNE, J. G.,	Bel Air,	Harford.
PERKINS, R. P.,	Forest Park,	*Baltimore City.*
RUHL, C. C.,	Baltimore,	*Baltimore City.*
SHIVERS, J. H. J.,	Westover,	Somerset.
STONER, A. D.,	Medford,	Carroll.
STUBBS, J. W.,	Pylesville,	Harford.
TALIAFERRO, J. E.,	Ware Neck,	*Virginia.*
THOMPSON, E. W.,	Washington,	*District of Columbia.*
TREVETTE, A. S.,	Glenn Allen,	*Virginia.*
VAN HORN, J. W.,	Chicago,	*Illinois.*
VAN SCHAICK, F. E.,	Washington,	*District of Columbia.*
WARD, H. B.,	Baltimore,	*Baltimore City.*
WELSH, C. E., JR.,	Riverdale,	Prince George.
WILLSON, F. E.,	Sandy Spring,	Montgomery.

NAME.	POST OFFICE.	COUNTY.
UNCLASSIFIED.		
Altieri, A. F. J.,	New York,	*New York City.*
Brooks, J. W., Jr.,	Madison,	Dorchester.
Godson, Mrs. J. E.,	Washington,	*District of Columbia.*
Helman, C. E.,	Knabesville,	*Pennsylvania.*
Kinyoun, C.,	Washington,	*District of Columbia.*
Love, I. D.,	Lonaconing,	Allegany.
Oberlin, L. D.,	Silver Spring,	Montgomery.
Perrie, A. L.,	College Park,	Prince George.
Rasmussen, H. A.,	Baltimore,	*Baltimore City.*
Robertson, J. R.,	La Plata,	Charles.
Rublee, Mrs. J. B.,	Cornish,	*New Hampshire.*
Schulz, Geo. J.,	College Park,	Prince George.
Shipley, H. B.,	College Park,	Prince George.
Smoot, L. R.,	Kensington,	Montgomery.
White, T. W.,	College Park,	Prince George.
STUDENTS IN THE SUMMER SCHOOL.		
Albrittain, Thelma,	La Plata,	Charles.
Baden, Lee L.,	Townshend,	Prince George.
Berry, Alice M.,	Berry,	Prince George.
Blandford, Daisy,	Clinton,	Prince George.
Buckley, Gertrude,	Mt. Washington,	Baltimore,
Buckley, Margaret,	Mt. Washington,	Baltimore,
Burgeon, Claudine,	Marriattsville,	Carroll,
Carroll, Morris,	Baltimore,	*Baltimore City.*
Carroll, Mrs. Wm.,	Baltimore,	*Baltimore City.*
Carroll, Wm.,	Baltimore,	*Baltimore City.*
Copper, Annie,	Chestertown,	Kent.
Dashiell, Aurelia,	Cambridge,	Dorchester.
Dashiell, Ellen,	Cambridge,	Dorchester.
Dashiell, Olive,	Princess Anne,	Somerset.
Fellows, Leah,	Davidsonville,	Anne Arundel.
Fisher, Maud W.,	Greenock,	Anne Arundel.
Gable, Clara L.,	Hamilton,	Baltimore.
Gardiner, Stella,	Waldorf,	Charles.
Gilliss, Mary A.,	St. Martins,	Worcester.
Golding, Katherine,	Laurel,	Prince George.
Gray, Virginia,	Riverdale,	Prince George.
Grier, Hattie,	Baltimore,	*Baltimore City.*
Harding, Elizabeth,	Laurel,	Prince George.
Holmes, Grace B.,	Takoma Park,	*District of Columbia.*
Kerby, Julia,	Congress Heights,	*District of Columbia.*
Le Savoy, N. A.,	Centerville,	Queen Anne.
Maddox, Lala R.,	Berlin,	Worcester.
Meredith Hortense	Cambridge,	Dorchester.
O'Neill, Martha,	Baltimore,	*Baltimore City.*
Powell, Dora,	Ridgely,	Caroline.
Pratt, Marion,	Riverdale,	Prince George.
Schultz, H. B.,	Baltimore,	*Baltimore City.*
Shelley, Margaret,	Washington,	*District of Columbia.*

NAME.	POST OFFICE.	COUNTY.
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3. Prof. Colby,	" " "	1860—1861
4. Prof. Henry Onderdonk,	" " "	1861—1864
5. Prof. N. B. Worthington,	" " "	1864—1867
6. Prof. C. L. C. Minor,	President of the College	1867—1868
7. Admiral Franklin Buchanan,	" " "	1868—1869
8. Prof. Samuel Regester,	" " "	1869—1873
9. General Samuel Jones,	" " "	1873—1875
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13. Major Henry E. Alvord,	" " "	1888—1892
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15. Thos. H. Spence, M. A., Acting	" " "	1912—1913
16. H. J. Patterson, Sc. D.,	" " "	1913—....

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